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COLLEGE OF PHARMACY
(An Autonomous College)
BELA (Ropar) Punjab



Name of Unit	Introduction to Psychology in Health care
Subject Name	Healthcare Psychology and Communication Skill
Course/Subject Code	BP-103T
Class: B. Pharm. Semester	1 ST SEM\ 1 st YEAR
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Learning Outcome of Module 01

Upon successful completion of this course, the students will be able to:

No.	CO
BP103.1	Explain basic psychology concepts and their relevance in healthcare.
BP103.2	Describe human development stages, personality traits, and illness responses.
BP103.3	Apply effective communication models in clinical and healthcare settings.
BP103.4	Demonstrate active listening, empathetic interaction, and clinical documentation skills.
BP103.5	Analyze behavioral interventions that promote mental health and treatment adherence.

LO	Particular	Course Outcome Code
LO 1	Explain the scope and relevance of psychology in healthcare.	BP103.1
LO 2	Identify clinical, health, behavioural, and developmental branches of psychology.	BP103.2
LO 3	Apply sensation, perception, and attention concepts in clinical assessments.	BP103.3
LO 4	Use learning and memory principles to modify health behaviours.	BP103.4
LO 5	Analyze emotion and motivation theories to understand patient	BP103.5

Content Table

Topic
• Definition • Scope of Psychology in Health Sciences • Relevance to Health Sciences (and Pharmacy) • Branches of Psychology with Healthcare Relevance • Sensation, Perception and Attention in Clinical assessment • Learning and Memory (Changing Health Behavior) • Emotion and Motivation in Healthcare

Introduction to Psychology in Healthcare

Definition: Psychology is the scientific study of the mind, brain, and behavior. It relies on empirical methods (observation, experimentation, and data collection) to understand how humans think, feel, act, and interact with their environment.

Scope of Psychology in Health Sciences

The scope spans across understanding the psychological roots of physical ailments to improving patient care delivery:

- **Patient-Centric Care (Understanding the Patient):** Evaluating how a patient's mental state influences their perception of physical illness. Physical illness changes a person's mental state. Psychology helps healthcare workers understand how fear, anxiety, or cultural beliefs change the way a patient experiences pain and deals with a diagnosis.
- **Behavioral Modification (Changing Bad Habits):** Designing strategies to alter unhealthy habits (e.g., smoking, poor diet, sedentary lifestyle). Many health problems (like lung cancer or liver cirrhosis) are caused by lifestyle choices. Psychology provides tools to help patients quit smoking, stop alcohol abuse, or switch to a healthy diet.
- **Healthcare Professional Well-being (Provider Health):** Addressing burnout, stress, and improving decision-making among pharmacists, doctors, and nurses. These Healthcare Professionals work under extreme stress. Psychology helps manage burnout (extreme emotional exhaustion), reduces workplace stress, and improves medical decision-making.
- **Adherence & Compliance (Taking Medicines Properly):** Understanding why patients fail to take prescribed medications and creating interventions to improve compliance. Millions of patients purchase medicines but never take them correctly. Psychology studies why patients stop taking pills and helps design strategies to keep them on track.

Relevance to Health Sciences (and Pharmacy)

- **Shifting from the "Biomedical" to the "Biopsychosocial":** Model Historically, medicine used the old Biomedical Model. This model treated the human body like a broken machine. If a patient was sick, doctors believed it was only due to a biological failure (like a virus, bacteria, or faulty gene). They completely ignored the patient's mind.

Modern healthcare uses the Biopsychosocial Model. It states that a patient's health and recovery depend on three interconnected pillars:

- 1) **Bio (Biological):** The physical virus, bacteria, or organ damage.
- 2) **Psycho (Psychological):** The patient's stress levels, coping mechanisms, fear, and mental state.
- 3) **Social (Socioeconomic):** The patient's family support, financial situation, and living environment.

Why it is relevant: If a pharmacist only treats the biological side, the patient might never truly heal.

Example: A patient comes to a pharmacy with a painful, bleeding stomach ulcer. The pharmacist can dispense antacids and antibiotics to kill the bacteria (Biological fix). However, if the root cause of the excess stomach acid is extreme psychological stress from a high-pressure job (Psychological factor), the ulcer will return the moment the patient stops the medicine. To truly cure the patient, the psychological stress must be addressed alongside the physical tablets

- **Managing the Expectation Barrier (Placebo vs. Nocebo Effects)**

Human expectations and beliefs change brain chemistry. When a patient swallows a pill, their brain automatically forms an expectation of what will happen next.

The Placebo Effect (Positive Expectation): If a patient strongly trusts their doctor or pharmacist and believes a medicine will cure them, their brain naturally releases chemicals (like endorphins and dopamine) that physically reduce pain and symptoms—even if they were secretly given an inactive sugar pill

The Nocebo Effect (Negative Expectation): If a patient is terrified of a medicine, doesn't trust the brand, or is highly anxious about side effects, their brain can generate real, physical side effects (like intense nausea, dizziness, or headaches) purely out of mental anticipation.

Why it is relevant: A pharmacist's communication style directly changes how well a drug works.

Example: If a pharmacist hands over a medication and confidently says, "This is an excellent, highly effective drug that will cure your infection within three days," they boost the positive Placebo Effect. But if the pharmacist anxiously states, "Take this, but be careful because it causes severe stomach pain in many patients," they might trigger a Nocebo Effect, causing an anxious patient to experience immediate stomach pain even if the drug chemically did not cause it.

➤ **Minimizing Clinical Errors caused by "Cognitive Overload"**

Psychology does not just apply to the patient; it applies directly to the healthcare professional. Pharmacies and hospitals are fast-paced, high-stress environments

Human brains have a limited capacity for processing information. When a pharmacist experiences Cognitive Overload (too many tasks, too much noise, and extreme exhaustion), their attention filters fail, and they suffer from mental fatigue.

Why it is relevant: Understanding human error psychology helps pharmacies design safer systems to prevent fatal mistakes

Example: A tired, overworked pharmacist is dispensing medication during a hectic rush hour. Because of an attention lapse caused by cognitive fatigue, they misread a handwritten prescription and accidentally hand over Aventyl (an antidepressant) instead of Avelox (an antibiotic) because the names sound almost identical. By applying psychological safety measures (like eliminating phone distractions and creating a mandatory quiet zone during drug dispensing), these clinical errors are drastically reduced.

➤ **Predicting and Overcoming Medication Non-Adherence**

Non-Adherence means a patient fails to take their medicines exactly as prescribed. Millions of expensive, highly advanced life-saving drugs fail every year simply because they remain locked inside the plastic pill bottle.

Psychology helps us understand the hidden mental barriers that cause patients to stop taking their pills:

Denial: "I feel fine, so my high blood pressure must be cured. I don't need these pills anymore."

Fear: "If I take this long-term, it will destroy my kidneys."

Cognitive Decline: Old age or mild dementia causing simple forgetfulness.

Why it is relevant: Pharmacists must use psychological behavioral techniques to help patients build reliable pill-taking habits.

Example: Instead of getting angry and scolding a diabetic patient who keeps forgetting their insulin shots, a pharmacist applies a psychological technique called habit-chaining. They ask the patient about their daily routine and say: "You never forget to brush your teeth every single morning. Place your insulin pen right next to your toothbrush, and make a mental rule to take your shot immediately after brushing your teeth." By anchoring the new Branches of Psychology with Healthcare Relevance behavior to an old, established habit, patient compliance sky-rockets.

Branches of Psychology with Healthcare Relevance

- **Clinical Psychology:** The branch that diagnoses and treats severe mental, emotional, and behavioral disorders (like clinical depression, anxiety disorders, and schizophrenia).

Healthcare Relevance: Pharmacists work closely with clinical psychologists and psychiatrists to manage complex psychopharmacological treatments, monitor drug-drug interactions, and watch for adverse metabolic side effects of psychiatric medications.

Example: A clinical psychologist treating a patient with severe panic attacks will coordinate with a pharmacist to monitor the patient's use of anti-anxiety medications (like Alprazolam) to avoid addiction and dangerous drug interactions.

- **Health Psychology:** The branch focused entirely on how psychological factors directly affect physical health, illness, and medical treatments.

Healthcare Relevance: It studies the psychological factors behind chronic diseases (like diabetes and hypertension) and helps design interventions to promote healthy lifestyles and medication adherence.

Example: A health psychologist studying why cardiovascular patients refuse to quit smoking discovers that these patients use nicotine as a primary psychological coping mechanism for financial stress. They then design a stress-management program combined with Nicotine Replacement Therapy (NRT).

- **Behavioral Psychology:** This branch ignores inner thoughts and focuses purely on observable behaviors. It states that all behaviors are learned through rewards and punishments from our environment.

Healthcare Relevance: Principles of behavior modification (like reinforcement) are vital for designing substance abuse rehabilitation programs, smoking cessation protocols, and weight-management routines.

Example: Using Aversion Therapy (a behavioral technique) to treat chronic alcoholism. A patient is given a drug like Disulfiram (Antabuse). If they consume alcohol, the drug interacts to cause immediate, severe nausea and vomiting. The brain associates alcohol with intense physical discomfort, conditioning the patient to avoid it.

- **Developmental Psychology:** The study of how human minds grow, change, and adapt throughout their entire life—from a newborn baby to old age.

Healthcare Relevance: Pediatric and geriatric patients require fundamentally different approaches. A developmental perspective helps a healthcare provider understand a child's fear of needles or an elderly patient's cognitive decline, which affects their ability to manage complex pill regimens.

Example: A 5-year-old child refuses to swallow a bitter cough syrup. The pharmacist uses developmental psychology to advise the mother to reward the child with a bright star sticker every time they finish a dose.

Sensation, Perception and Attention in Clinical assessment:

- **Clinical assessment:** A Clinical Assessment is a systematic process where a healthcare professional (like a doctor, clinical psychologist, or pharmacist) collects detailed information about a patient to evaluate their health status, diagnose a problem, and design a proper treatment plan.

- **Sensation (The Input):** Your 5 sense organs (eyes, ears, nose, tongue, skin) act like antennas. They collect raw physical signals from the outside world and send them to the brain. At this stage, the brain does not understand what the signal means.

Healthcare Relevance: High doses of the antibiotic Gentamicin can poison the inner ear. The patient will feel a raw, constant ringing sensation in their ears (Tinnitus).

The Pharmacist's Job: Catch this warning sign immediately and stop the drug before the patient goes permanently deaf.

- **Perception (The Meaning):** Your brain takes that raw sensory signal, looks at your emotions and past memories, and decides what it actually means.

Healthcare Relevance:

Pain is mental: Two patients get the exact same injection. Patient A is calm, so their brain perceives it as a tiny scratch. Patient B is terrified, so their anxiety amplifies the signal, causing their brain to perceive it as severe, agonizing pain.

Phantom Limb Pain: When a patient's leg is amputated, the physical leg is gone (no sensation). But the brain's internal map still perceives severe pain or cramping in the missing foot.

The Pharmacist's Job Pharmacists treat these using brain-calming drugs like Gabapentin

- **Attention (The Filter):** Your brain cannot focus on everything at once. Attention is the mental filter that locks onto one important thing and blocks out all the background noise.

Healthcare Relevance: The Panic Blindspot: When a doctor tells a patient they have a serious condition like kidney failure, the patient goes into shock. Their attention completely locks onto fear and survival.

- **The Pharmacist's Job:** If you try to give complex oral medicine instructions right after this, the patient's overloaded attention filter will block it out. You must provide written leaflets or color-coded pill boxes because their attention span is temporarily blinded by panic

Learning and Memory (Changing Health Behavior)

- **Rewarding Health Behaviors (Operant Conditioning):** We change patient habits using two types of reinforcement:
 1. **Positive Reinforcement (Giving a Reward):** Adding a good thing to make a habit stick.
Example: A fitness app that gives a patient gift cards or discounts every time they complete 10,000 daily steps.
 2. **Negative Reinforcement (Removing Pain):** Removing an unpleasant thing to make a habit stick.
Example: A patient has a terrible migraine. They take a paracetamol tablet, and the pain vanishes. The removal of the painful headache teaches the brain to take the pill immediately next time.
- **Patient Memory Limits:** The human Short-Term Memory can only hold about 5 to 9 facts for roughly 20 seconds. If you tell a patient too many oral instructions, they will forget them
 - **Pharmacist Solutions to Save Patient Memory:**
 - a) **Categorization (Grouping):** Instead of giving random times, group pills by daily habits: "Take the blue ones with breakfast, and the red one right when you go to bed."
 - b) **Primacy & Recency Effect:** People remember the very first and the very last things said to them. State the most dangerous warning first ("Do not drink alcohol with this"), say the general details in the middle, and repeat the dangerous warning at the end

Emotion and Motivation in Healthcare

- **Motivation: The Drive to Heal**

Intrinsic Motivation (Internal Desire): The patient wants to get healthy for themselves ("I want to quit smoking so I can feel strong and see my kids grow up"). This creates permanent lifestyle changes.

Extrinsic Motivation (External Pressure): The patient acts purely due to outside forces ("I am only taking this medicine because my wife forces me to"). This type of compliance usually fails quickly.

The Health Belief Model (HBM)

A patient will only be motivated to take action if their mind checks these 4 boxes:

- 1) Perceived Susceptibility: "Do I believe I can catch this illness?"
- 2) Perceived Severity: "Is this illness actually dangerous, or just a small cold?"
- 3) Perceived Benefits: "Will this medicine actually help me?"
- 4) Perceived Barriers: "Is the pill too expensive? Are the side effects too scary?"

➤ **How Emotions Physically Change the Body:**

Emotions cause chemical reactions.

The Damage of Anxiety: When a patient is constantly terrified or highly stressed about an illness, their brain releases a stress hormone called Cortisol. High cortisol levels physically cripple the immune system and drastically slow down wound healing.

Depion and Fatal Non-Compliance: Deep sadness causes hopelessness. For example, a patient survives a major heart attack but falls into a severe depression. Because they feel hopeless ("What's the point? I'm going to die anyway"), they stop taking their crucial blood thinners, directly causing a second, fatal heart attack.

Section A: MCQ Based questions

1. Psychology is the scientific study of:
A) Bones
B) Mind, brain, and behavior
C) Medicines only
D) Blood circulation
Answer: B
2. Which method is commonly used in psychology?
A) Guesswork
B) Astrology
C) Experimentation
D) Magic
Answer: C
3. Patient-centric care mainly focuses on:
A) Hospital buildings
B) Patient's mental and emotional condition
C) Drug manufacturing
D) Surgery equipment
Answer: B
4. Behavioral modification helps in:
A) Changing unhealthy habits
B) Increasing disease spread
C) Ignoring patient care
D) Avoiding exercise
Answer: A
5. Burnout among healthcare professionals refers to:
A) Physical injury
B) Emotional exhaustion
C) Fever
D) Memory gain
Answer: B
6. Adherence means:
A) Avoiding medicines
B) Taking medicines correctly
C) Selling medicines
D) Mixing drugs
Answer: B
7. The traditional Biomedical Model mainly focused on:
A) Social factors
B) Mental health
C) Biological causes of disease
D) Family support
Answer: C
8. The modern healthcare model is called:
A) Economic model
B) Biopsychosocial model
C) Behavioral model
D) Political model
Answer: B
9. In the Biopsychosocial model, "Psycho" refers to:
A) Financial condition
B) Mental state and stress
C) Viral infection
D) Housing
Answer: B
10. Family support belongs to which pillar of the Biopsychosocial model?
A) Biological
B) Psychological
C) Social
D) Genetic
Answer: C
11. The Placebo Effect occurs due to:
A) Negative thinking
B) Positive expectations
C) Surgery
D) Infection
Answer: B
12. The Nocebo Effect is caused by:
A) Positive emotions
B) Exercise
C) Fear and negative expectations
D) Good nutrition
Answer: C
13. Which brain chemicals are associated with the placebo effect?
A) Insulin and glucagon
B) Endorphins and dopamine
C) Calcium and iron
D) Histamine and serotonin
Answer: B
14. Cognitive overload in pharmacists may lead to:
A) Better concentration
B) Clinical errors
C) Faster healing
D) Improved immunity
Answer: B

15. Non-adherence means:
A) Correct use of drugs
B) Failure to take medicines properly
C) Manufacturing medicines
D) Writing prescriptions
Answer: B
16. Which is a psychological barrier to medication adherence?
A) Trust
B) Denial
C) Discipline
D) Knowledge
Answer: B
17. Habit-chaining helps patients by:
A) Increasing stress
B) Linking a new habit with an old habit
C) Reducing sleep
D) Avoiding medicines
Answer: B
18. Clinical psychology mainly deals with:
A) Nutrition only
B) Severe mental disorders
C) Engineering
D) Agriculture
Answer: B
19. Which medication is commonly used for panic attacks?
A) Aspirin
B) Alprazolam
C) Metformin
D) Paracetamol
Answer: B
20. Health psychology studies:
A) Building construction
B) Psychological factors affecting health
C) Weather conditions
D) Computer science
Answer: B
21. Behavioral psychology focuses mainly on:
A) Dreams
B) Observable behavior
C) DNA
D) Blood groups
Answer: B
22. Disulfiram is used in:
A) Diabetes
B) Alcoholism treatment
C) Hypertension
D) Asthma
Answer: B
23. Developmental psychology studies:
A) Drug synthesis
B) Human growth and changes across life
C) Surgery methods
D) Cell division only
Answer: B
24. A child refusing bitter syrup is an example related to:
A) Behavioral psychology
B) Developmental psychology
C) Social psychology
D) Industrial psychology
Answer: B
25. Clinical assessment is:
A) A random observation
B) A systematic patient evaluation process
C) A surgery technique
D) A marketing strategy
Answer: B
26. Sensation refers to:
A) Meaning of signals
B) Raw sensory input
C) Memory storage
D) Motivation
Answer: B
27. Tinnitus is commonly associated with toxicity from:
A) Gentamicin
B) Vitamin C
C) Insulin
D) Calcium
Answer: A
28. Perception means:
A) Raw sensory signal
B) Brain's interpretation of signals
C) Physical exercise
D) Digestion
Answer: B
29. Phantom limb pain occurs when:
A) A broken bone heals
B) Pain is felt in an amputated limb
C) The skin burns
D) Eyes become weak
Answer: B

30. Gabapentin is used to treat:

- A) Fever
- B) Phantom limb pain
- C) Hypertension
- D) Ulcers

Answer: B

31. Attention acts as:

- A) A storage device
- B) A mental filter
- C) A hormone
- D) A sensory organ

Answer: B

32. Panic may reduce a patient's ability to:

- A) Sleep
- B) Understand medicine instructions
- C) Eat food
- D) Walk properly

Answer: B

33. Operant conditioning is mainly related to:

- A) Rewards and punishments
- B) Blood circulation
- C) Genetics
- D) Hormones

Answer: A

34. Positive reinforcement means:

- A) Adding rewards to encourage behavior
- B) Giving punishment
- C) Removing rewards
- D) Ignoring habits

Answer: A

35. Negative reinforcement involves:

- A) Increasing pain
- B) Removing unpleasant experiences
- C) Punishment only
- D) Sleep therapy

Answer: B

36. Human short-term memory usually holds:

- A) 1–2 facts
- B) 5–9 facts
- C) 20–30 facts
- D) Unlimited facts

Answer: B

37. Primacy effect means people remember:

- A) Middle information best
- B) First information best
- C) No information
- D) Random information

Answer: B

38. Recency effect means people remember:

- A) The last information best
- B) The first information only
- C) Nothing after stress
- D) Written information only

Answer: A

39. Intrinsic motivation comes from:

- A) Family pressure
- B) Internal desire
- C) Money only
- D) Fear

Answer: B

40. Extrinsic motivation comes from:

- A) Personal goals
- B) External pressure
- C) Self-confidence
- D) Curiosity

Answer: B

41. The Health Belief Model contains:

- A) 2 factors
- B) 3 factors
- C) 4 factors
- D) 10 factors

Answer: C

42. "Do I believe I can catch this illness?" refers to:

- A) Perceived severity
- B) Perceived benefits
- C) Perceived susceptibility
- D) Perceived barriers

Answer: C

43. "Will this medicine help me?" refers to:

- A) Perceived benefits
- B) Perceived severity
- C) Motivation
- D) Reinforcement

Answer: A

44. Cortisol is:

- A) A digestive enzyme
- B) A stress hormone
- C) A vitamin
- D) An antibiotic

Answer: B

45. High cortisol levels can:

- A) Improve immunity greatly

- B) Slow wound healing
- C) Increase memory permanently
- D) Cure infections

Answer: B

46. Depression may cause:

- A) Better adherence
- B) Hopelessness and stopping medicines
- C) Increased appetite only
- D) Faster healing

Answer: B

47. Which branch studies smoking cessation and weight management?

- A) Developmental psychology
- B) Behavioral psychology
- C) Social psychology
- D) Educational psychology

Answer: B

48. Which factor can trigger a Nocebo Effect?

A) Confidence in treatment

B) Fear of side effects

C) Healthy diet

D) Exercise

Answer: B

49. Quiet zones during dispensing help reduce:

A) Drug production

B) Cognitive overload and errors

C) Patient trust

D) Blood pressure

Answer: B

50. Psychology in healthcare mainly improves:

A) Patient care and treatment outcomes

B) Weather forecasting

C) Agriculture

D) Building construction

Answer: A

Section B: 2 marks questions

1. Define psychology.
2. What is patient-centric care?
3. Define adherence and compliance.
4. What is the Biomedical Model?
5. Define the Biopsychosocial Model.
6. What is the placebo effect?
7. What is the nocebo effect?
8. Define cognitive overload.
9. What is non-adherence?
10. Define clinical psychology.
11. What is health psychology?
12. Define behavioral psychology.
13. What is developmental psychology?
14. Define sensation.
15. What is perception?
16. Define attention.
17. What is operant conditioning?
18. What is positive reinforcement?
19. Define intrinsic motivation.
20. What is cortisol?

Section C: 5 Marks Questions

1. Explain the scope of psychology in health sciences.
2. Discuss the importance of patient-centric care.
3. Explain the Biopsychosocial Model with example.
4. Differentiate between placebo and nocebo effects.
5. Explain cognitive overload and its impact on clinical errors.
6. Discuss causes of medication non-adherence.
7. Explain the role of clinical psychology in healthcare.
8. Describe the importance of health psychology.
9. Explain behavioral psychology with healthcare examples.
10. Discuss developmental psychology in pediatric and geriatric care.
11. Explain sensation, perception, and attention in clinical assessment.
12. Describe phantom limb pain and its management.
13. Explain positive and negative reinforcement with examples.
14. Discuss patient memory limitations and pharmacist solutions.
15. Explain intrinsic and extrinsic motivation in healthcare.

Section D : 10 marks questions

1. Define psychology and explain its scope in healthcare and pharmacy.
2. Explain the Biopsychosocial Model in detail with suitable examples.
3. Discuss the relevance of psychology in health sciences.
4. Explain placebo and nocebo effects and their significance in patient care.
5. Describe cognitive overload and psychological methods to minimize clinical errors.
6. Explain medication non-adherence, its causes, and behavioral techniques to improve compliance.
7. Discuss various branches of psychology with healthcare relevance.
8. Explain clinical assessment with reference to sensation, perception, and attention.
9. Discuss learning and memory in changing health behavior.
10. Explain operant conditioning and reinforcement techniques in healthcare.
11. Describe the Health Belief Model and its role in patient motivation.
12. Explain how emotions and anxiety physically affect the human body.
13. Discuss the role of pharmacists in managing patient psychology.
14. Explain the importance of motivation in long-term health behavior change.
15. Discuss the role of psychology in improving patient outcomes and healthcare delivery.

Case-Based Learning Question (10 Marks)

A 58-year-old diabetic patient frequently forgets to take insulin injections. During counseling, the pharmacist discovers that the patient never forgets to brush his teeth every morning. The pharmacist advises the patient to keep the insulin pen next to the toothbrush and take the injection immediately after brushing.

Based on this case, answer the following:

1. What psychological problem is shown in this case?
2. Define medication non-adherence.
3. Explain the psychological technique used by the pharmacist.
4. How does this technique improve patient compliance?
5. Mention two other psychological methods that can improve medication adherence.

Answers

1. What psychological problem is shown in this case?

The psychological problem shown in this case is **medication non-adherence due to forgetfulness**. The patient fails to take insulin injections regularly as prescribed.

2. Define medication non-adherence.

Medication non-adherence is the condition in which a patient does not take medicines exactly according to the prescribed dose, time, or duration advised by the healthcare professional.

3. Explain the psychological technique used by the pharmacist.

The pharmacist used a psychological technique called **habit-chaining**. In this method, a new health behavior is linked with an already established daily habit. Since the patient never forgets brushing teeth, the pharmacist connected insulin injection with that routine activity.

4. How does this technique improve patient compliance?

This technique improves patient compliance by creating a strong daily reminder through an existing habit. The patient is more likely to remember insulin injections because brushing teeth already occurs regularly every morning. It reduces forgetfulness and helps build a consistent medication-taking routine.

5. Mention two other psychological methods that can improve medication adherence.

1. **Positive Reinforcement:** Rewarding patients for regularly taking medicines.
2. **Categorization/Grouping:** Organizing medicines according to daily routines, such as taking pills with breakfast or before bedtime.

Problem-Based Learning Question (10 Marks)

A busy hospital pharmacist is working during rush hour with constant phone calls, noise, and heavy workload. Due to stress and mental fatigue, the pharmacist accidentally dispenses Aventyl instead of Avelox because the drug names sound similar.

Based on this situation, answer the following:

1. Identify the psychological problem involved in this case.
2. Define cognitive overload.
3. Explain how stress and mental fatigue affect clinical decision-making.
4. Discuss the possible consequences of such dispensing errors.
5. Suggest psychological and workplace strategies to reduce clinical errors in pharmacies.

Answers

1. Identify the psychological problem involved in this case.

The psychological problem involved is **cognitive overload** caused by excessive workload, stress, noise, and mental fatigue.

2. Define cognitive overload.

Cognitive overload is a condition in which the human brain receives too much information or too many tasks at the same time, reducing concentration, attention, and decision-making ability.

3. Explain how stress and mental fatigue affect clinical decision-making.

Stress and mental fatigue reduce attention and concentration. A tired pharmacist may misread prescriptions, confuse similar drug names, or miss important details. This increases the chances of clinical and dispensing errors.

4. Discuss the possible consequences of such dispensing errors.

- Wrong medicine may be given to the patient.
- Patient may suffer serious adverse effects.
- Delay in proper treatment can occur.
- Severe cases may lead to hospitalization or death.
- Loss of patient trust in healthcare professionals and pharmacies.

5. Suggest psychological and workplace strategies to reduce clinical errors in pharmacies.

1. Create quiet zones during medication dispensing.
2. Reduce unnecessary phone and environmental distractions.
3. Ensure proper rest breaks for pharmacists.
4. Use double-checking systems for prescriptions.
5. Improve workload management and staff support.