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When Treatment Succeeds but Recovery Fails: A Multidisciplinary Perspective on Clinical, Psychological and Social Determinants of Patient Outcomes

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Abstract

Background: Developments in medical science have considerably enhanced the diagnostic accuracy, therapeutic efficiency, and safety of procedures. But a successful treatment does not necessarily mean a satisfactory recovery. Despite good clinical or radiological outcomes patients may continue to experience pain, psychological distress, functional limitations, social disruption and reduced quality of life.

Objective: This narrative review aims to the clinical, psychological and social determinants that create discrepancies between treatment success and perception of recovery by patients. It also deals with the importance of patient-centred assessment and multidisciplinary care in assessing meaningful health outcomes.

Methods: A narrative synthesis was developed from a selection of peer-reviewed publications covering the biopsychosocial model, patient-centred care, social determinants of health, health literacy, patient activation, psychological barriers to recovery and patient-reported outcome measures. Foundational theoretical publications, systematic reviews, observational studies and relevant clinical literature.

Discussion: The conventional measures of success of treatment target disease resolution, anatomical correction, laboratory parameters and procedural outcomes. Although these indicators are important, they may not be fully capturing psychological well-being, functional independence, social participation or patient satisfaction. Rehabilitation and functional recovery can be impaired by psychological factors such as fear, anxiety and depressive symptoms. Financial constraints, health literacy, social support and access to continuing care can also affect a patient's ability to translate clinical improvement into sustained recovery. Patient-reported outcome measures and shared decision-making provide complementary approaches to understand these dimensions.

Conclusion: Treatment success and patient recovery are distinct but related outcomes. A full evaluation of the effectiveness of health care should incorporate clinical improvement and psychological well-being, functional capability and social participation. Incorporating these dimensions into routine clinical practice may enable us to recognise unmet recovery needs and to foster more meaningful, patient-centered care.

Keywords: Biopsychosocial Model, Clinical Outcomes, Functional Recovery, Health Literacy, Patient-Centred Care, Patient-Reported Outcomes, Psychological Well-Being, Social Determinants of Health

1. Introduction

Modern medicine has made great progress in diagnosing disease, correcting anatomical abnormalities and prolonging life. Advances in surgery, drugs, imaging and rehabilitation have changed the way we treat diseases that used to cause a lot of illness. Clinical endpoints are often used to assess treatment outcomes and are quantifiable, such as disease remission, radiological healing, biochemical normalisation, procedural success and complication rates. These parameters are still fundamental to evidence-based medicine. However, they are not necessarily the full experience of recovery.

A patient can have satisfactory fracture healing and still be unable to return to work. Someone else may have a technically successful surgery but still experience pain, anxiety or functional limitations. People receiving effective medical treatment may also have financial problems, reduced social participation or uncertainty about their future health. Such circumstances underscore an important distinction between successful treatment of disease and restoration of meaningful well-being.

Engel recognised the limitations of a purely biomedical understanding of health and suggested that biological, psychological and social dimensions should be considered together when understanding illness and patient care [1]. Later advances in biopsychosocial theory have emphasised even more the significance of investigating the interaction of these dimensions and not considering them as separate influences [2, 3].

This view is extended by patient-centred care, which recognises that successful healthcare must also consider patients' experiences, expectations, preferences and individual circumstances. A systematic review by Rathert *et al*. found associations between patient-centred care and a number of positive outcomes, although the strength and consistency of the evidence varied across settings [4]. Shared decision making fosters collaboration between clinicians and patients so that treatment choices reflect both clinical evidence and individual priorities [5].

Despite these developments, the gap between clinical success and patient-perceived recovery continues to be an important problem in health care disciplines. These differences are not necessarily due to treatment failure. Rather, they may reflect recovery needs that are not fully captured by traditional clinical assessments.

In this narrative review, we examine the clinical, psychological and social determinants that impact on recovery following medical and surgical interventions. The limitations of conventional outcome assessment, the importance of psychological and social circumstances and the contribution of patient-reported outcomes to more comprehensive assessments of healthcare effectiveness are specifically focused.

2. Materials and Methods

2.1 Review design

This article was written as a narrative review aiming to integrate conceptual, clinical and patient-centered perspectives on the relationship between treatment success and recovery.

The review is based on 20 selected publications on biopsychosocial model, patient-centred care, social determinants of health, health literacy, patient activation, patient-reported outcome measurement and psychological factors in rehabilitation. The literature contains seminal theoretical papers, systematic reviews, methodological papers, observational studies and clinical reports.

2.2 Literature selection and thematic synthesis

Publications were selected and screened for relevance to five broad themes: Biomedical definitions of treatment success, psychological influences on recovery, social and contextual determinants, patient reported outcomes and multidisciplinary approaches to patient-centred care.

Evidence was synthesised narratively to identify recurring themes, areas of consensus and limitations in interpretation of clinical outcomes.

This is a narrative review and therefore did not involve quantitative meta-analysis, pooled effect estimation or formal evaluation of study heterogeneity. The review does not claim to have identified all relevant publications.

The literature selection was purposive, not systematic. Thus, the findings are presented as a critical synthesis of relevant evidence and not a full systematic review.

3. Treatment Success and Patient Recovery: Two Distinct Outcomes

Objective evidence is usually required, to provide evidence of treatment success, to demonstrate that the intended therapeutic intervention has achieved the primary clinical objective of treatment. In surgery it can be anatomical restoration, stable fixation, successful reconstruction or removal of the underlying pathology. This may be disease control, improvement in physiological parameters, reduction in symptoms or prevention of complications in clinical practice. Such indicators are important because they show that a biological effect of the intervention has been achieved.

Recovery however is a bigger process. "It's about getting back physical capacity, psychological confidence, personal independence and participation in daily life." These outcomes are likely to improve with good treatment. But the association is neither automatic nor uniform.

Even when an intervention is technically successful, there may be residual limitations from the original disease, prolonged immobility, muscle weakness, persistent pain, or other associated medical conditions. Psychological distress can also influence the patient's desire to resume activities. Social factors that may impact recovery maintenance include work demands, money and family duties.

The difference is most noticeable in musculokeletal care. Radiological union of a fracture fixation is an important biological milestone but does not necessarily imply restoration of muscle strength, joint mobility or occupational capacity. Similarly, although a successful ligament reconstruction may restore structural stability, it does not ensure psychological readiness to return to sport.

In their editorial The Person Behind the Fracture: Are We Listening Sufficiently? Rajadurai and Shyam stressed the importance of going beyond the immediate orthopaedic diagnosis and understanding the patient's individual circumstances and experiences [6]. This view emphasises the need to view treatment success as part of the patient's overall experience of recovery.

But the distinction between treatment success and recovery is not to say that standard clinical measures are inadequate or irrelevant. Objective measures remain important for assessing the efficacy of therapy and for detecting complications. The concern arises when these measures are taken as sufficient to characterise the whole outcome of a patient. Table 1 summarises the main clinical, psychological and social determinants that may hinder recovery even when treatment seems successful.

Table 1: Clinical, psychological and social determinants influencing patient recovery

Domain	Determinants	Potential influence on recovery	Supporting references
Clinical and biological	Residual pain, muscle weakness, stiffness, comorbidities	Persistent functional limitations despite disease control or anatomical healing	[1-3,6]
Psychological	Anxiety, depressive symptoms, fear of reinjury, reduced confidence	Avoidance of activity, reduced rehabilitation participation and delayed functional recovery	[1-3,7-9]
Social	Financial constraints, employment demands, family responsibilities, social disadvantage	Difficulty accessing treatment, rehabilitation and sustained support	[10]
Health literacy	Limited understanding of illness, treatment and rehabilitation	Difficulty following treatment plans and making informed decisions	[11]
Patient engagement	Reduced participation in care and limited self-management confidence	Potential difficulties with adherence, self-management and care experiences	[5, 12, 13]
Healthcare delivery	Fragmented follow-up, insufficient communication, limited outcome monitoring	Unrecognised recovery needs and missed opportunities for supportive intervention	[4, 5, 14, 15]

Note: The table presents a narrative synthesis of selected literature. The cited studies differ in design, populations and outcomes; not every proposed relationship has been directly established across all medical specialties

4. Psychosocial determinants of healing

Psychological well-being is an important part of recovery, especially if treatment involves long-term rehabilitation, adaptation of behaviour or gradual increase in physical activity. Patients' interpretation of symptoms and participation in recovery may be influenced by anxiety, depressive symptoms, fear of recurrence, and loss of confidence.

These should not be interpreted as evidence for imaginality of the symptoms, or for the fault of the patients in not recovering. Psychological responses that may be related to pain, uncertainty, previous treatment experiences and social circumstances are often associated with real biological impairment.

4.1 Fear of recurrence and worry

Even with good anatomical healing, patients can be concerned about re-injury after an injury or surgery. These concerns may be especially great if recovery involves resuming strenuous physical activity.

Hsu *et al.* [7] have studied the fear of reinjury in athletes and its potential impact on rehabilitation, functional outcomes and return to sport. In their review, they found that fear-based avoidance could interfere with recovery, even if physical rehabilitation was going well.

Caumeil *et al*. also investigated reinjury anxiety and return to sport following anterior cruciate ligament reconstruction, highlighting the significance of psychological responses to postoperative participation [8].

More recently, Malempati *et al*. have also studied the role of psychological and social factors in recovery after anterior cruciate ligament reconstruction [9].

These studies underscore a key clinical principle: Re-establishment of anatomic stability and re-establishment of confidence are related but distinct processes.

However, conclusions based on sports injury populations should not be extrapolated to medical conditions not related to sport. The intensity and the effect of the fear may depend on the type of illness, the personal situation and the needs of the rehabilitation.

4.2 Emotional health and signs of depression

Chronic illness, long term recovery or ongoing functional limitations may be associated with depressive symptoms. Treatment engagement and everyday functioning may be difficult due to reduced motivation, sleep problems, fatigue and problems with concentration.

Kroenke *et al*. [16] validated the Patient Health Questionnaire-9 (PHQ-9), a brief measure of depressive symptom severity for use in clinical settings. These tools may help clinicians to identify psychological problems that would otherwise be undetected.

However, the interpretation of screening results must be put in a clinical context. A positive screening result is not a psychiatric diagnosis per se, and psychological assessment should supplement, not replace, assessment of possible physical causes of persistent symptoms.

4.3 Psychological preparedness and functional participation

The patient may be physically strong or have stable joints but not want to go back to work, sport or other strenuous activities. This difference may be due to uncertainty about tissue healing, previous pain experiences or fear of treatment failure.

Therefore, psychological readiness should be considered in conjunction with objective physical assessments when planning a return to activity. Clinicians should ask the patient about any concerns they have, describe the expected course of recovery and point out situations in which further psychological support may be appropriate.

The literature available supports the significance of these factors, especially when considering sports rehabilitation, but does not justify the assumption that psychological interventions will improve all clinical outcomes or that all persistent limitations are psychological in origin [7-9].

5. Social Determinants of Recovery

Recovery takes place in a social environment that might augment or limit the beneficial effects of medical treatment. Financial resources, education, employment, housing, transportation, and access to healthcare may affect the continuity and effectiveness of recovery.

Braveman and Gottlieb pointed out the need to address the social conditions affecting health outcomes [10]. Their analysis points to why health differences cannot be explained by individual biological attributes or health care interventions alone.

5.1 Economic and employment situation

Some of the financial effects of illness may continue after successful treatment. Patients may have lost wages, transportation costs, rehabilitation costs or may have difficulty returning to work.

For those in physically demanding occupations a medically satisfactory outcome may not be synonymous with occupational readiness. The physical requirements of a particular job may be very different from the capacity to perform basic activities of daily living.

Therefore, clinical follow-up should take into account whether functional improvement is sufficient for the patient's actual occupational and domestic responsibilities.

5.2 Family support and social participation

Family members often help with medication management, transportation, rehabilitation and daily activities. The availability of these resources may determine whether or not a treatment plan is practical.

But family support cannot be assumed or considered adequate in all places. Some patients live alone, have considerable caregiving responsibilities or are socially isolated.

A patient-centred assessment should recognise these situations without substituting family involvement for appropriate professional care.

5.3 Understanding of treatment and health literacy

Health literacy affects how people get, understand, and use health information. In an updated systematic review, Berkman *et al*. found associations between limited health literacy and multiple adverse health outcomes [11].

In practice, patients may not understand instructions about medications, activity restrictions, warning symptoms or follow-up. Difficulties can arise even when the treatment has been carried out correctly.

Open communication, instructions that are easy to understand, and the chance for patients to ask questions about their concerns. This may improve the practical use of care.

5.4 Self-management and patient activation

Patient activation is the knowledge, skills and confidence that people have in managing their health.

[12] Greene and Hibbard examined relationships between patient activation and health outcomes. Hibbard and Greene then presented evidence that higher activation is related to more favourable health outcomes and experiences of care, while noting that there are limitations in the evidence relating to costs [13].

These findings support the importance of patient participation in recovery. However, patient activation should not be used to place the onus of recovery solely on individuals, particularly where social or financial constraints limit the options available to them.

6. Measuring Recovery Beyond Typical Clinical Outcomes

Standard measures of outcome are intended to measure particular features of disease or treatment. They are valued for their objectivity, clinical relevance and their ability to compare interventions.

But a single outcome measure seldom captures all dimensions of recovery.

Patient-reported outcome measures (PROMs) provide us with direct input from patients on symptoms, functioning, health status and quality of life. They can point to problems not fully captured in lab results, imaging or clinician evaluations.

Ware and Sherbourne [17] proposed the conceptual basis for the 36-item Short Form Health Survey (SF-36), a multi-dimensional measure of health status. Later psychometric work by McHorney *et al*. [18] supported the validity of the instrument for measuring physical and mental health constructs. A further well known multidimensional health assessment is the RAND 36-Item Health Survey [19].

These tools demonstrate the importance of evaluating health beyond a single disease-specific endpoint.

6.1 Clinical outcomes vs. patient-reported recovery

Objective clinical outcomes and patient-reported outcomes should be considered complementary sources of evidence rather than competing sources.

Radiological healing may suggest successful fracture management, while patient-reported assessment may show persistent pain, difficulty walking or inability to return to work. None of the observations contradict each other.

Valderas *et al*. performed a systematic review on the effects of providing healthcare professionals with patient-reported outcome information. Some studies showed improvements in care processes or outcomes but effects were heterogeneous and methodological limitations precluded firm conclusions [14].

Porter *et al*. further examined the opportunities and challenges associated with the use of patient-reported outcomes in clinical practice [15].

PROMs should therefore not be framed as universally effective interventions. The value of these depends on appropriate selection of instruments, correct interpretation of results and ensuring that concerns identified lead to meaningful clinical responses. Table 2 shows how conventional measures of treatment success compare with broader dimensions of patient-centred recovery assessment.

Table 2: Conventional clinical outcomes versus multidimensional patient-centred recovery assessment

Assessment dimension	Conventional clinical assessment	Complementary patient-centred assessment	Relevant references
Treatment effectiveness	Disease control, anatomical correction, procedural success	Perceived improvement and achievement of individual treatment goals	[1-5]
Physical recovery	Range of motion, strength, clinical examination	Ability to perform daily activities and resume meaningful roles	[17-19]
Pain and symptoms	Clinical examination and symptom severity	Patient-perceived symptom burden and interference with activities	[14, 15, 17]
Psychological well-being	Recognition of clinically apparent distress	Structured symptom screening and assessment of fear, confidence and readiness	[7-9, 16]
Social recovery	Return-to-work status or discharge destination	Occupational demands, family responsibilities and social participation	[10, 11]
Treatment engagement	Attendance and adherence documentation	Understanding of treatment, shared decisions and self-management confidence	[5, 11-13]
Quality of life	Disease-specific clinical indicators	Multidimensional health-status measures such as SF-36 or RAND-36	[17-19]
Follow-up evaluation	Complications, recurrence and objective treatment endpoints	Persistent unmet needs identified through patient-reported assessment	[4, 14, 15]

Note: The comparisons are illustrative and do not imply that all conventional clinical assessments exclude patient-centred measures. The appropriate instruments and assessment intervals depend on the clinical condition

7. The Significance of Multidisciplinary Care in Meaningful Recovery

Recovery is often complex and needs inputs from many disciplines of healthcare. Physicians and surgeons treat the underlying disease and its complications; rehabilitation professionals help restore mobility, strength and functional ability. Psychological support may be indicated if there is emotional distress, fear or maladaptive avoidance interfering with recovery. Nursing professionals, social workers, and other health care team members may assist in addressing practical barriers to continued care.

The biopsychosocial perspective offers a conceptual framework for these complementary responsibilities [1-3].

"But that doesn't mean every patient has to see several specialists. This can drive up costs and create unnecessary complexity.

Rather the level of multidisciplinary input should be determined by the needs identified in the patient, the clinical situation and the resources available.

7.1 Communication and joint decision-making

Good communication helps clinicians learn what recovery means to an individual patient.

Successful recovery may mean going back to work for some. It could also be about going for a walk by yourself, returning to family duties or engaging in leisure activities.

Shared decision making helps clinicians incorporate these priorities into treatment planning [5]. The evidence reviewed by Rathert *et al*. also indicates that patient-centred approaches may improve satisfaction and self-management, although the associations with objective clinical outcomes are less consistent [4].

In practice this means that clinical goals should be discussed in terms that patients can understand and, where possible, match their functional expectations.

7.2 Continuity in care

Recovery often does not end with hospital discharge or the end of the primary intervention. Patients may need long-term rehabilitation, symptom management, psychological support or help getting back to work.

Fragmented follow-up makes it hard to identify ongoing needs for recovery. Patient-reported assessments may assist in identifying these issues, but the effectiveness of such tools is dependent on the incorporation of information into clinical decision-making [14, 15].

Continuity of care is therefore more than just making appointments. There is a need for an appropriate mechanism to review the recovery progress, identify the unmet needs and respond to them.

7.3 Prioritising individual recovery needs

Individualised assessment is also important in reconstructive surgery.

Rajadurai *et al*. reported on measured flap planning for adult complex syndactyly release, highlighting the technical considerations in reconstructive management [20]. This case report does not establish a general relationship between psychological factors and recovery but it does offer a clinical setting where anatomical reconstruction, hand function and appearance may all be relevant to patient expectations.

Examples such as these highlight the need to distinguish between the successful completion of a procedure and the wider outcomes that matter to patients.

8. Clinical Implications

There are some practical implications about what constitutes treatment success and what constitutes recovery.

First, clinicians should establish treatment goals, including disease-specific endpoints and other relevant functional outcomes. Is not to say, however, that anatomic or physiologic success is not important. Instead, it provides assurance of interpretation of efficacy of treatment in the patient's situation.

Secondly, ongoing symptoms or functional limitations should trigger appropriate re-evaluation. Psychological or social factors may contribute to problems in recovery, but should not be used to discount complications, incomplete healing or previously unrecognised pathology.

Third, if appropriately selected and interpreted, patient reported outcomes can supplement routine follow-up. The implementation must be deliberate and consider the clinical actions to be taken after identification of unmet needs [14, 15].

Fourth, communication needs to set realistic expectations for recovery. Patients may find it helpful to know that biological healing, return of physical function and resumption of social roles may occur at different rates.

Finally, clinicians should be aware that access to rehabilitation and ongoing care may be limited by financial, occupational or social circumstances. A treatment plan that is theoretically sound but practically unavailable may not meet its intended benefit.

These issues are relevant to all surgical and medical specialities but the evidence base and appropriate interventions will vary with the condition.

9. Limitations of the review

This review has a number of limitations.

The narrative design and purposive choice of literature may introduce selection bias. The publications included were not identified through a full systematic search and no formal risk of bias assessment was performed.

Second, the literature included in the review consisted of theoretical publications, systematic reviews, observational studies, methodological papers and clinical reports. Direct comparisons are limited by differences in study design and outcome measurement.

Thirdly, there is some clinical evidence from sports medicine and orthopaedic rehabilitation about psychological recovery. These studies are illustrative of the important links between physical recovery and psychological readiness, but their findings cannot be generalised automatically to other medical specialities.

Fourth, the relationship between patient-centred care and objective clinical outcomes remains heterogeneous. Similarly, the evidence on the clinical effectiveness of the routine collection of patient-reported outcomes is heterogeneous [4, 14].

Finally, the review fails to establish causal links between particular psychological or social determinants and outcomes of treatment. Its conclusions should therefore be regarded as a synthesis of existing concepts and evidence, not as proof of a universal mechanism underlying incomplete recovery.

10. Future Directions

Future research with prospective, multidisciplinary study design should explore the discordance between objective treatment success and patient-perceived recovery.

Studies that use validated clinical measures, psychological assessments, patient-reported outcomes, and relevant social indicators can help to identify which dimensions most affect recovery in different patient populations.

Longitudinal research would be particularly valuable in determining changes over time in biological healing, psychological confidence and functional participation. Such investigations could also help determine whether specific interventions improve meaningful outcomes, rather than merely the number of assessments performed.

Further research is needed to investigate the feasibility and clinical utility of integrating patient-reported outcomes into routine practice, especially in health care settings with limited personnel, financial resources and rehabilitation services.

Importantly, future studies should not assume that all patients require the same multidisciplinary interventions. Identifying those patients who are most likely to benefit from additional support may improve the efficiency and relevance of care.

11. Conclusion

Recovery and effective therapy are related but separate. Clinical improvement, anatomical repair, and disease control are important indicators of therapy efficacy. However, these could result in psychological anguish and long-term functional deficits that undermine general well-being. In addition to standard clinical evaluations, the evidence emphasises the significance of psychological preparedness, health literacy, patient engagement, and social settings. In addition to biological treatment, a multidisciplinary, patient-centered approach recognises that recovery involves more than just resolving the disease; it also involves regaining meaningful everyday participation. In the end, the patient's functional and personal life regains, as well as clinical corrections, are what truly make a treatment successful.

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