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# Theory of Determination in Recovering Fitness

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## Abstract

Recovery from chronic illness that develops following an acute health crisis is often a long and uncertain process. While current research and rehabilitation efforts focus largely on diagnosing and treating physical symptoms, understanding the main concern of patients recovering from chronic illnesses and conditions, such as long COVID, and how they resolve this main concern was the purpose of this study. This classic grounded theory study was conducted among patients recovering from long COVID. The resulting theory found a main concern of patients is their major loss of fitness. The core category, determination in recovering fitness, emerged as a strategy where the patient is directing determination into recovering fitness by deriving encouragements while enduring discouragements. This theory explains the crucial role of determination in recovering fitness that was lost due to a chronic illness resulting from an acute health crisis. The patient's fitness recovery status is significantly related to their level of determination.

*Keywords:* Recovery, Fitness, Chronic Illness, Determination, Acute Health Crisis



INSTITUTE FOR RESEARCH AND THEORY METHODOLOGIES

Recovery from chronic illness that develops following an acute health crisis is often a long and uncertain process. A chronic illness (e.g., long COVID) is a health condition that lasts for a long time, typically three months or more, usually after an acute episode of a disease (Wisk et al., 2022). Although an acute episode of a disease may be brought under control through intensive medical intervention, many patients continue to experience persistent and life-altering symptoms. A prominent example is long COVID. While surviving the acute phase of COVID-19, where symptoms are severe and critical, may mark the end of immediate danger, it does not signal the end of illness for many individuals. A growing number of patients experience long COVID, a condition marked by persistent and varied symptoms that continue weeks or months beyond the initial infection (Chen et al., 2022). Patients with chronic illnesses are not simply recovering from an acute event; they are now living with a long-term illness that has emerged from that crisis.

Patients with long COVID commonly report symptoms such as chronic fatigue, breathlessness, brain fog, muscle pain, anxiety, depression, and sleep disturbances, which fluctuate unpredictably (Huerne et al., 2023; Merhavy et al., 2024; Nielsen & Yarker, 2024; Oh, 2022; Wurz et al., 2022). Thus, symptoms of chronic illnesses and conditions are not only physically disabling but also emotionally and mentally distressing, and they severely impact the lives (Zakaria et al., 2021) of many patients. Many patients find themselves unable to return to work and resume pre-illness activities.

Despite the impact of long COVID, current rehabilitation efforts remain largely based on the biomedical model, which focuses predominantly on diagnosing and treating physical symptoms as shown in extant literature (Chuang et al., 2023; Oh et al., 2023; Zeraatkar et al., 2024). However, this model tends to overlook the main concern of patients with chronic illnesses and how this main concern is addressed from their perspective. Thus, understanding the main concern of patients recovering from chronic illnesses and conditions such as long COVID and how they resolve this main concern is therefore essential, and the purpose of this study.

In classic grounded theory (CGT), identifying the main concern is not only critical but also a signature of the methodology (Connor et al., 2024). While the main concern is already fixed by the researcher in other methodologies, this critical and signature approach used by CGT ensures that the relevant main concern of the patients is identified and the emergence of a theory that explains the pattern of behavior that addresses this main concern.

## Methodology

The purpose of this study was to discover an explanatory theory regarding the recovery of patients with chronic illnesses following an acute health crisis. Data from patients who were recovering from long COVID following an acute, severe, and life-threatening infection of COVID-19 were studied to develop this theory.

### Data Collection and Analysis

This study was approved by the National University of Malaysia Research Ethics Committee. Data were collected from interviews and online open sources. Informed consent were obtained from participants who were interviewed. Data collection and analysis were conducted simultaneously by the first author. Purposive sampling was initially carried out to begin data collection at the beginning of the study to collect data from the interviews following inclusion criteria: (a) participants are over 18 years old, and (a) they were classified as category 4 and 5 patients when they were infected. In

Malaysia, category 4 denotes patients with severe symptoms, including marked pneumonia or respiratory distress, necessitating oxygen supplementation and close medical supervision. Category 5 comprises critically-ill patients experiencing acute respiratory failure, shock, or multiorgan dysfunction, who require intensive care unit (ICU) admission and advanced life-saving interventions such as mechanical ventilation, dialysis, or intensive pharmacological support.

There were seven participants who were interviewed. Participants were hospitalized and required oxygen and ventilatory support; two were treated in the ICU. All participants lived in Kota Kinabalu, Sabah, East Malaysia, where access to medical and health services is limited when compared with Malaysia's capital, Kuala Lumpur. The sampling began with category 4 and 5 patients from the first author's personal contacts and later from those introduced by these contacts. Interviews were conducted using an interview schedule consisting primarily of open-ended questions. While we would have preferred to use a grand tour question as recommended for classic grounded theory studies, the interview schedule was prepared to meet the requirements of the National University of Malaysia's ethics committee. The schedule was used flexibly, serving as a starting point for exploration, allowing concepts to emerge from the data through theoretical sampling, substantive coding, and constant comparison. It evolved throughout the research process, with new questions added based on concepts that emerged during data analysis. These new questions were also posed to earlier participants to obtain their responses in follow-up conversations. All data were coded, and codes were compared. Interviews were conducted via Zoom, WhatsApp messaging, email, and in person, accommodating participant preferences.

Additionally, seven personal stories of long COVID patients from online open sources were also included as data using theoretical sampling. Four of these personal stories were collected from the Johns Hopkins Medicine website (https://www.hopkinsmedicine.org/health/conditions-and-diseases/coronavirus), and 3 were from a Reddit subreddit forum (r/covidlonghaulers, n.d).

Data collection was supported by field notes (Glaser, 1998), which were used to document participants' responses during the interviews. The field notes were taken via a word processor on a computer with password access. The field notes were transferred to ATLAS.ti software. ATLAS.ti software was only used for document and data management. Data from the field notes were coded immediately after the interview. Data analysis occurred after the first interview. Data from the online open sources were also transferred to ATLAS.ti as field notes. All data were coded and analyzed using the constant comparative method of analysis. Coding and memoing were done manually by the first author using the software's coding and memo functions. Concepts were arranged consistently, and their relationships were written in memos as the researchers examined how they were interconnected. This process also guided the direction of subsequent data collection and the formation of new interview questions used during theoretical sampling to achieve theoretical saturation and completion. Constant comparison was used throughout the process. Memos were generated and sorted after theoretical saturation occurred. The outcome for the study was the discovery and emergence of the main concern—major fitness loss—and the core category—determination in recovering fitness.

## Theory of Determination in Recovering Fitness

As a core category, determination in recovering fitness emerged as a strategy used to resolve the experience of major fitness loss by the patient who are recovering from chronic illness following an acute health crisis. An acute event is an external trigger that precedes chronicity (e.g., SARS-CoV-2 infection leading to long COVID). An acute health crisis acts as a precipitating factor for major fitness loss, which extends to the illness and recovery.

Major fitness loss is the depletion of the physical, emotional, and mental capacities required to meet the demands of daily activities. It represents a sudden and significant reduction in a patient's ability to function in ways they were able to do before the health crisis, and which they took for granted. Fitness loss is often experienced with persistent symptoms. Persistent symptoms are ongoing combinations of new and pre-existing physical, emotional, or cognitive disturbances that extend and linger beyond the acute health crisis, fluctuate, and unpredictable throughout the illness and recovery process. Some of these symptoms may arise from medical interventions. While these symptoms varied, there were clusters of common symptoms shared among patients.

When fitness loss is experienced, these symptoms are felt. Together, these losses and symptoms often limit patients' abilities to carry out two categories of daily activities: physical functioning activities and lifestyle activities. Physical functioning activities are the basic life-sustaining tasks necessary for survival and independent living, most commonly breathing, moving, and engaging in cognitive tasks. A major loss of fitness typically interrupts these activities. Lifestyle activities encompass doing day-to-day pursuits, including work and role responsibilities, as well as recreation (i.e., sports and exercise, hobbies and interests, and travel) activities. Loss of fitness is often felt acutely in these domains because they represent normalcy, identity, and social contribution.

Thus, determination in recovering fitness is a strategy where the patient is directing determination into recovering fitness by deriving encouragements while enduring discouragements. See Figure 1 for the theoretical outline organizational flowchart for this strategy.

**Figure 1 (see appendix)**

*Theoretical Outline Organizational Flowchart*

Determination in recovering fitness is demonstrated by directing determination into continuous physical, emotional, and mental efforts in recovering fitness. These efforts consist of physical, emotional, and mental exertions that the patient carries out. Exertions are required to overcome the physical, emotional, and mental limitations following the major fitness loss. Determination is directed into these exertions. Determination is directly affected by encouragements and discouragements. Encouragements are factors that are derived to intensify continued determination directed toward recovering fitness whereas discouragements are factors that one endures and might lead them to give up and dampen their determination.

### Directing Determination

Directing determination is having, focusing and making determination a continuous supportive action and driving force of recovering fitness. Recovering fitness, a primary action of recovery, is characterized by uncertainty, and it is not a quick or easy process due to the experience of major fitness loss and the lingering symptoms of the illness. Thus, determination directed into recovering fitness is required. Determination supports the continuation of

recovering fitness. One patient said, "It is all about determination. As a COVID patient, everything is a difficult struggle. [I] must have [my] own determination . . . Some people give up."

This determination may be expressed as the patient's motivation, drive, perseverance, persistence, the will to survive, firmness, confidence, resilience and not giving up when facing their major fitness loss and the uncertainties in recovering fitness. As the patient could be easily discouraged by several factors discussed in the theory, deriving encouragements boosts determination, as a result, intensifies recovering fitness. Enduring discouragements may lead to reduction of determination thus restricting recovering fitness.

***Deriving Encouragements***

Encouragements are factors the patient derives from that lead to positivity and boost determination. The following three factors function as encouragements: (a) responsibility, (b) progress, and (c) support.

Responsibility for others relates to role obligations for others. Responsibility for others, especially family, often supports and strongly encourages activities related to recovering fitness. Thus, boosting the patient's determination. One patient said, "I am a breadwinner. [My] daughter [is] just 8 years old, and my wife left [the] workplace 8 years [ago]. [I have] love and responsibility [for them]."

Progress in recovering fitness is when outcomes relating to fitness recovery status are obtained and/or exceeded expectations in line with priorities and goals in recovering fitness. Attaining these outcomes indicate improvements (i.e., increase in capacity, better health, symptom reduction) and a sense of achievement that boost determination. One patient who initially feared that his lung fibrosis might not improve, as told by his doctors, was overjoyed that his lungs improved after two and a half months of lung physiotherapy and recovery following his discharge from the hospital. He and his family were completely encouraged by this improvement.

Support from others is external support for determination. Others include people around them (namely, family, friends and community, workplace, and health professionals) and spiritual support. Support from people around them provides care, emotional support, empathy, understanding, knowledge, information, and access to treatment and care that boost determination. Spiritual support assists by encouraging calmness and composure. It assists patients in their openness, positive outlook, and acceptance of their loss. Spiritual support helps in accepting losses in fitness through spiritual practices like gratitude, prayers, and providence. One patient explained, "[I am] not sure how [I] survived. [I] think that this is God's providence. [I] believe that all of this is God's challenge for me to witness. This is how I think positively." External support provides external encouragement that strengthens determination.

***Enduring Discouragements***

Determination may be adversely affected when the patient runs into discouragements when enduring them. Discouragements are factors which lead to negativity and dampen determination. These discouragements are namely, negative thinking, poor support, and slow progress.

Negative thinking is overthinking about negative and uncertain outcomes (e.g., failure to regain fitness, experiencing further fitness loss, the inability to carry out their roles and responsibilities, permanent disability, and/or giving up). Negative thinking often leads to pessimism and feeling more distressed, depressed, anxious, frustrated, demotivated and disappointed.

One patient said, “Along the journey I . . . face a lot of challenges, then all the negative things will pop out in [my] mind.”

Poor support from others is support that is lacking and does not meet the expectations of the patient. Poor support, especially from health professionals, is the most discouraging. It may reinforce fears and negative thinking. A patient explained:

> the words [and] advice from doctors [and] nurses are very important to patients, especially some critical patients like us . . . [They said] "don't expect you can live as before", "No, your lungs can't recover, the scratches on the wall of your lungs will stay there forever." All these, although true, sound so [discouraging] for the patient who [is trying] his best to recover.

Poor support may include judgement and apathy, lack of knowledge, and lack of access to care. Poor support that is poorly handled will lead the patient to be more discouraged. Judgement and apathy may be poorly dealt with evading. Evading involves being elusive and vague about the condition to avoid sharing about their condition and being judged by others. Consequently, the required external support that is crucial to recovering fitness is not received.

Lack of knowledge due to the lack of information coming from health professionals may be poorly handled with information obsessing. Information obsessing is excessiveness and over-zealousness in information searching and believing in misinformation. Information searching in obtaining answers relating to the illness is usually via the internet when their doctors cannot give a definite answer. This leads to overinformation and confusion. Believing in misinformation includes believing in false information regarding their illness. This leads to avoiding vital steps in recovering fitness. Information obsessing reinforces fear and negative thinking. A patient reported that he could not get any answers from his doctors. Subsequently, he looked for information through a Google search on whether the scars from his lungs would go away. As the information was inconclusive, it made him more fearful and discouraged. Lack of access to care may be poorly dealt with by avoiding care and support all together.

Slow progress in recovering fitness is characterized by little to no, or even regressive, outcomes in the fitness recovery status. The outcomes did not meet the patient’s expectations, and capacity, health, and symptom levels did not improve. A patient stated that “there were moments when I felt like giving up, especially when progress seemed slow.” Recurring and worsening symptoms may lead the patient to perceive slow progress. When symptoms recur or worsen, they may again experience fitness loss. Slow progress leads the patient to feel disappointed and discouraged. One patient said: “[My] physical challenges . . . [and] mental weakness kill [my] determination.”

To cope with discouragements, the patient often relies on deriving the encouragements covered in the previous section to counteract the discouragements endured which increases their determination. One patient stressed that:

> [I] have to be positive . . . [I] do whatever is suggested by [the lungs] physiotherapist, [and as] for the mind, I have to be positive . . . When we are facing life and death, we generally [have] thoughts that we will lose all [or] many things, including our life. When there is hope, we will try our best to regain it even though we are facing many discouragements.

**Recovering Fitness**

Recovering fitness is a primary action

carried out during recovery. Recovering fitness consists of these two subcategories of actions carried out during recovery: (a) resuming activities and (b) advancing health. Determination directs these actions, but it is strengthened when the patient derives encouragements and may be dampened when they endure discouragements. The goal for recovering fitness directed by determination is attaining recovered fitness status that exists on a continuum ranging from the status of attaining incomplete recovered fitness to regaining fully recovered fitness. Recovered fitness is the improved state that is presently obtained and perceived. This improvement is characterized by three core dimensions: gains, status, and life priorities.

Gains are characterized by a significant increase in physical, emotional, and mental capacities to meet the demands of daily activities, alongside better health and reduced symptoms. Fitness recovery status is the current progress within the recovered fitness continuum that is indicated by realized gains. The goal is to attain an improved status i.e., moving from attaining incomplete recovered fitness toward regaining fully recovered fitness. These two statuses form the poles of the continuum; progress is defined as the movement toward the regaining fully recovered fitness end, indicating more gains and higher level of determination. Improvements enable deeper prioritizing. This involves deciding on and pursuing life priorities, which were previously taken for granted, to achieve a better fitness recovery status and a more accomplished life through a combination of new and re-evaluated life priorities (i.e., those that relate to personal well-being, family, community, work, and career, and/or spirituality).

Attaining incomplete recovered fitness status is perceiving that the capacity to meet daily demands and previous health levels has not yet been completely regained although there may be some improvements. Incomplete recovered fitness status is influenced by two primary factors: symptom variance and limitations. Symptom variance is experienced as fluctuations in the type and intensity of symptoms during exertion. Limitations are perceived physical constraints, such as aging, pre-existing conditions, or unrelated conditions that hinder the trajectory of improvement. When recovered fitness is felt to be incomplete, three distinct trajectories emerge: intensifying, discontinuing, and resigning. Intensifying refers to stepping up active strategies to improve health, capacity and achieve a more complete recovery, working towards attaining fully recovered fitness. Discontinuing is ceasing active strategies and allowing improvement to take its own natural course. Resigning is accepting limitations and maintaining the new level of achieved capacity and health.

Regaining fully recovered fitness status is perceiving that the capacity to meet daily demands and previous health levels have been completely regained, with little to no symptom occurrence. At this point, the focus shifts from recovering to maintenance and enhancement. Efforts are continued not to regain what was lost but to maintain the fully recovered status and prioritize personal well-being as a foundational life priority.

***Resuming Activities***

When recovering from an acute illness, patients are often eager to resume activities to continue with their lives. Resuming activities encompasses efforts to return to daily activities following an acute health crisis. Resuming activities includes improving physical functioning and resuming lifestyle activities. Initial improvement in physical functioning takes precedence. Improving physical functioning activities, namely breathing, movement, and

cognitive functions, which often decline because of the acute illness, are important in supporting lifestyle activities, which typically include work and role responsibilities and recreation activities (i.e., sports and exercise, hobbies and interests, and travel).

The capacity to carry out and meet the demands of lifestyle activities is regained and improved through resuming engagement in these activities. The demands of daily activities, especially work and role responsibilities, often push for engagement in lifestyle activities despite a lack of fitness in physical functioning. One patient said, "Once [I could] walk, [I] went back to the office. [I] have company matters to handle." The patient also stated that he had to walk up the staircase, stopping at every level to get to his office, but over time, his stamina improved. As this example demonstrates, resuming lifestyle activities often helps improve physical functioning.

***Advancing Health***

Advancing health is an ongoing effort in staying healthy to improve and regain physical, emotional, and mental fitness throughout the acute health crisis, illness, and recovery. There is an interplay between resuming activities and advancing health, where advancing health supports patients in resuming activities and vice versa. Advancing health consists of the following actions: staying symptom-free and staying open.

Staying symptom-free is a progressive elimination of symptoms via the following sub-actions: staying strong, staying in treatment, staying stress-free, staying safe, and staying disciplined. These sub-actions are directly involved with symptom elimination. The patient stays strong to fortify physical, emotional, and mental form by staying active with lifestyle activities (resuming sports and exercise), nourishing themselves with food, nutrition, and supplements, and staying positive. Staying positive is fostering emotional and mental resilience by maintaining a positive outlook regarding recovery despite facing symptoms, poor health, and fitness loss.

A positive outlook might be gained and maintained through the following processes: reflecting, prioritizing, goal setting, pacing, and showing gratitude. Firstly, reflecting on life priorities during periods of rest during recovery often leads to new perspectives on life priorities. Reflection is initiated by the distress caused by the near-death experience, the resulting fitness loss, and not wanting the recurrence of these experiences. Next, prioritizing encompasses deciding on which life priorities to pursue. These re-evaluated life priorities often refer to what matters most in life and were previously taken for granted. These priorities may relate to personal well-being, family, community, work, career, and/or spirituality.

Goal setting in recovering fitness aligns to new life priorities and setting milestones to ensure progressive outcomes that relate to the achievement of recovered fitness. Pacing assists in setting and keeping with these goals and life priorities. Pacing is typically defined by incremental increases in exertion that are personalized for the patient through trial and error and/or guidance by health professionals. Showing gratitude, a spiritual practice, relates to being positive and accepting any outcome relating to the attainment of recovered fitness.

Staying in treatment is undergoing therapeutic care by health professionals to manage and reduce symptoms. Staying stress-free is relieving debilitating emotional and mental tensions and their triggers that lead to recurrence of symptoms. Effective energy management through rest, self-care, and work-life balance is often used as relief for the tensions and triggers to prevent

symptoms from recurring. Staying safe is taking precautions in avoiding recurrence of health crisis and symptoms. These precautions often relate to prevention of reinfection, overexertion, and being overweight. Staying symptom-free requires efforts in staying disciplined (i.e., self-discipline and consistency).

Staying open is fostering openness (i.e., honesty) about the illness via the following sub-actions: staying connected and educated. Staying connected is cultivating open communication and association (e.g., socializing) to obtain encouragements (i.e., support from others, especially people around them) without worry of judgement. By staying educated about physical, emotional, and mental fitness, health and symptoms are improved. Furthermore, self-enrichment and motivation topics are crucial, especially when learning from valid information (e.g., factual and credible information from health professionals and trustworthy published materials). Staying open about the illness by staying connected and educated supports efforts to stay symptom-free and the overall determination in recovering fitness.

**Discussion and Contribution of Study**

This study employed a classic grounded theory methodology to generate an explanatory theory about the recovery of chronic illnesses following acute health crises based on the experiences of long COVID patients who suffered severe and critical COVID-19 symptoms when they were infected. The resulting theory, centered on the determination in recovering fitness, highlights the major concern faced by patients—a major fitness loss. It is a struggle to regain capacity and reintegrate into daily life with persistent and unpredictable symptoms. While focusing on the biological mechanisms of chronic illnesses such as long COVID and its clinical management is effective, the concepts that emerged in this study augment these mechanisms by outlining the psychological and motivational aspects of recovery framed as determination in recovering fitness. This study offers a framework for understanding the main concern, major fitness loss, and how determination in recovering fitness is implemented as a strategy to deal with this loss. The theory also presents factors that encourage and discourage this determination, and the continuum of fitness recovery that is an outcome of implementing the strategy.

While past studies emphasize the variability of symptoms (Nielsen & Yarker, 2024; Oh, 2022; Wurz et al., 2022), this study identifies the loss of fitness as a main concern that patients try to address following an acute illness. Through determination in recovering fitness, patients can gradually regain function, space out symptom relapses, and ultimately, attain a better status of fitness recovery. Framing recovery as an outcome in terms of attaining a better status of fitness recovery and restoration enhances personal agency and motivates patients to actively engage in their recovery.

Survivors of chronic illnesses following acute health crises, usually triggered by external factors, often undergo prolonged rehabilitation due to a major loss of physical, emotional, and mental fitness. Some of these chronic illnesses might include cancer, stroke, severe infections, cardiovascular diseases, and mental illnesses. Future research might look at expanding the explanatory theory developed in this study to serve as a useful guide for health professionals working with these populations. Focusing on a patient's major loss of fitness and encouraging determination in recovering fitness may enhance psychological resilience and improve functional outcomes across a range of chronic illnesses and conditions.

Furthermore, this theory suggests

important implications for the design of healthcare services. The process of recovery is not only a biomedical process but also a psychological and social one that is framed as the implementation of determination in recovering fitness with the goal of attaining a better status of fitness recovery throughout the health crisis, chronic illness, and recovery. The discouragements that patients frequently experience highlight the need for interdisciplinary care and empathy. Mental health counselors and health and rehabilitation psychologists should collaborate with medical professionals to provide continued encouragement and psychological support. Empathy and communication training programs for healthcare providers, alongside educational initiatives for patients and their families on taking shared responsibility in recovery, can be informed by this theory.

By outlining the ways in which determination is cultivated as a strategy during long-term recovery of fitness, this study contributes to the growing body of knowledge in health and rehabilitation psychology and health services research. It offers a patient-informed perspective that complements biomedical models and can inform both policy and practice in chronic illness care.

**Limitations of the Study**

The theory of determination in recovering fitness would benefit from the inclusion of additional data drawn from patients recovering from other types of chronic illnesses. According to Glaser (1998), the emergence of new, relevant data does not invalidate a grounded theory but serves to modify and refine it, thereby enhancing its fit and applicability. Nevertheless, the concepts that emerged could be used by other populations experiencing similar concerns as these patients. Patients recovering from health conditions such as cancer, cardiovascular disease, stroke, severe infections, mental illnesses, and other chronic conditions might find resonance with these concepts, especially when facing a major loss of fitness leading to prolonged rehabilitation and recovery, and disruptions to their personal and professional lives.

**Conclusion**

The explanatory theory developed in this study highlights the central role of determination in the recovery process from chronic illnesses and conditions. The theory suggests that a patient's status of fitness recovery and recovery is significantly influenced by their level of determination in recovering their fitness, which enables them to adapt to the non-linear and unpredictable course of long-term illness and fitness loss. Determination supports patients in enduring the ups-and-downs regarding symptoms (Oh, 2022) and maintaining engagement with recovery efforts over time. This insight contributes to a deeper understanding of patient experiences and offers a meaningful guide for designing supportive interventions in clinical and community settings.

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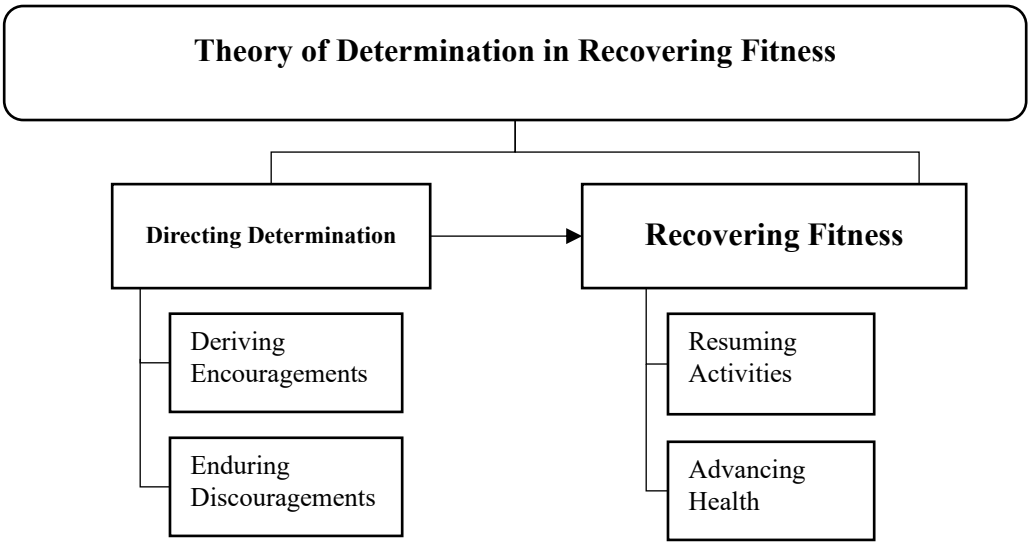
## Appendix

**Figure 1.** Theoretical Outline Organizational Flowchart



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