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Review

Physical restraint in mental health nursing: A concept analysis

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ABSTRACT

Objective: Physical restraint is frequently used in medical services, such as in mental health settings, intensive care units and nursing homes, but its nature varies in different institutions. By reviewing related literature, this study aims to clarify the concept of physical restraint in mental health nursing.

Method: Three databases (PubMed, PsycINFO and CINAHL) were retrieved, and Walker and Avant's concept analysis method was used to analyze the concept of physical restraint in mental health nursing.

Results: Physical restraint is a coercive approach that enables the administration of necessary treatment by safely reducing the patient's physical movement. It should be the last option used by qualified personnel. Antecedents of physical restraint are improper behavior (violence and disturbance) of patients, medical assessment prior to implementation and legislation governing clinical usage. Consequences of physical restraint are alleviation of conflict, physical injury, mental trauma and invisible impact on the institution.

Discussion: This study defined the characteristics of physical restraint in mental health nursing. The proposed concept analysis provided theoretical foundation for future studies.

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What is known?

- In mental health care, nurses implement physical restraint when a patient poses a life-threatening risk or unmanageable disturbing behavior.
- Physical restraint is frequently used in mental health settings, thereby causing various unexpected effects.

What is new?

- In mental health nursing, physical restraint is a coercive approach of ensuring safety or maintaining necessary treatment when patients pose a critical risk. Physical restraint achieves its goal by applying designed devices to reduce the patient's physical movement.

- The intention of implementing physical restraint is closely associated with a nurse's personal view and perceived moral obligation.

1. Introduction

Patients with mental illness may pose critical risks to themselves and others. Patients with severe mental disorders have a high possibility of autolesion and agitation [1,2]. Medical practitioners generally apply alternative approaches, such as de-escalation technique and crisis management, to alleviate critical risks posed by an acute mental illness patient. Nevertheless, compulsory intervention is implemented when alternatives fail to resolve the conflict. Regarded as an inhumane approach, the use of physical restraint is prevalent in mental health settings, although its frequency varies greatly in different institutions. The frequency of physical restraint use on admitted patients in mental health settings ranges from 3.8% to 51.3% worldwide. Several investigations have claimed that the frequency of physical restraint

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use on psychiatric inpatients considerably increased in the recent decade [1,3,4].

The application of physical restraint causes practical and ethical controversies, because it results in various unexpected effects on patients and nurses [5,6]. However, the use of physical restraint is an effective approach to avoid further injury by reducing the patient's physical movement [7]. Medical practitioners agree that applying physical restraint under urgent circumstances is rational, but it may be abused with the intention of punishment due to theoretical ambiguity [8]. To supervise the implementation of physical restraint, committees of mental health services published corresponding guidelines and protocols, and the institutes within the administrative area were required to execute such guidelines [9]. To the best of our knowledge, most published studies defined physical restraint according to its application and policy within target institutes [1,10–12]. Moreover, guidelines and protocols focused on implementing occasions and outcomes of physical restraint [13–15]. However, the definition of physical restraint in mental health nursing has not been explicitly clarified yet, and such situation hinders the improvement of nursing practice as well as future research on physical restraint.

This study aims to provide an in-depth view of the definition of physical restraint in mental health nursing. The framework developed by Walker and Avant (2010) was used to analyze the concept of physical restraint by defining a) its attributes, b) model, contrary and borderline cases, c) antecedents, d) consequences, e) empirical referents and f) appropriate middle range theory [16].

Data used in this study were from articles related to physical restraint, covering the period from 1949 to 2017. Databases included PubMed, PsycINFO and CINAHL. Search terms included “physical restraint”, “mechanical restraint”, “psychiatric” and “mental health”. The reference lists of identified articles were manually retrieved, and necessary definitions were extracted. Official websites of several mental health committees were manually searched for the guidelines and protocols governing physical restraint. Inclusion criteria were as follows: a) published in English and b) related to the use of physical restraint in mental health service. A total of 359 papers were identified, including 35 duplicates and 238 irrelevant papers, which were excluded. Finally, 88 papers were included in this concept analysis.

2. Uses of the concept

The terms “physical restraint” and “mechanical restraint” can generally be used interchangeably. Published studies about physical restraint focused on exploring its contraindications and side effects rather than its characteristics. Erickson (1949) initially mentioned that physical restraint was an approach to subdue patients with agitated, aggressive and disturbed behavior by applying chains and manacles [17]. However, Erickson (1949) only clarified the psychological effects caused by physical restraint without clearly defining the concept of physical restraint. Rosen and Digiacomo (1978) concluded that the presence of severe psychotic symptoms, violence and agitation were vital indicators of applying physical restraint, thereby implying the potential occasions of physical restraint use. Further studies redefined the nature of physical restraint as a procedure to alleviate a patient's physical threat to others and his/her environment [18–22].

However, official documents have defined the characteristics of physical restraint. Physical restraint is applied to guarantee the safety of patients and medical practitioners. The mental health services guidelines of the United States, the United Kingdom, South Africa, Australia and Hong Kong, China include shared protocols regarding the clinical occasions and implementation of physical restraint. These clinical occasions included a) posing critical risks to

self and others, b) disturbing and unmanageable behavior and c) compulsory treatment. The guidelines indicated a manual method when implementing physical restraint to immobilise a patient's body by using prescribed devices [13,23–26].

The characteristics above represent different perspectives of physical restraint in mental health nursing, but its concept is just as complex and developing. To further delineate its definition, this study will clarify the nature of physical restraint in mental health nursing.

3. Defining attributes

Firstly, physical restraint is a **coercive approach**, because its implementation is against the patient's will. In general, an adult has the right to make decisions independently, which is recognised as individual autonomy. Informed consent is deemed to be the basic display of respecting individual autonomy [27]. However, physical restraint may sometimes be used without informed consent. Therefore, its implementation contradicts the principle of autonomy to some extent. Although regarded as a measure that violates individual autonomy, official documents conditionally allow the application of physical restraint in mental health settings [14,26,28,29].

Secondly, physical restraint must be implemented by **qualified personnel**. Given that personnel and patients are exposed to critical risks during the application of physical restraint, official documents state that only qualified personnel are authorized to apply physical restraint [14,25]. However, structures of training program are not consistent. Training programs on physical restraint focus on improving the proficiency of applying physical restraint, including its clinical indications, alternative approaches, implementing procedure, adverse effects and strategies to minimise injury and trauma [30]. Studies have proposed that psychiatric wards with well-trained personnel had low frequency and duration of physical restraint and few restraint-induced adverse effects [30,31].

Thirdly, physical restraint is an aim-targeting approach to **guarantee patient safety and their necessary treatment**. Patients with mental illness may pose life-threatening risks to others and themselves, for example, agitation and suicide [32]. Under such extreme occasions, manual physical restraint is applied to manage the conflict by reducing the patient's physical movement. Critically ill patients on involuntary admission who refuse necessary mental health treatment may also be subjected to physical restraint. However, only after medical intervention will psychotic symptoms be improved evidently, thereby alleviating dangerous behaviors and risk level [33]. Therefore, physical restraint is a crucial approach to maintain the necessary treatment of patients with severe mental disorders.

Fourthly, physical restraint is an intervention that must be conducted as the **last resort**. Surprisingly, health service providers reveal that they tend to apply physical restraint in light of guaranteeing safety, yet they experience fear and moral conflict while conducting physical restraint [34]. Studies on physical restraint concentrate on its frequency, correlations and clinical influence. However, specific guidelines define the implementing occasions of using physical restraint. Similarly, the rules governing physical restraint claim that it must be adopted as the last resort to resolve critical threat in the workplace. The guidelines also proposed that this compulsory intervention should be decided under comprehensive medical assessment, and necessary alternatives ought to be attempted prior to its implementation [14,25]. In addition, physical restraint must not be applied for the personnel's convenience under any clinical circumstances.

Definition: Physical restraint is a coercive approach of reducing a patient's physical movement, which aims to ensure safety and

maintain necessary treatment when a patient poses life-threatening risks. To protect the patient's best interest, it must be implemented as the last resort only by qualified personnel.

4. Case examples

4.1. Model case

Mr. A, aged 34, was a newly admitted patient diagnosed with mania. He was talkative and aggressive, announcing that he was a powerful juggernaut. One day, he discussed the presidential election of the United States with another patient. Mr. A supported Hillary Clinton, whereas the other patient rooted for Donald Trump and explained the reasons he was against Hillary's election. Mr. A suddenly lost his control and shouted, "You are a fool and I am going to teach you a lesson" while clenching his fists. The nurses on duty responded immediately and attempted to alleviate the argument. De-escalation was conducted but failed (**last resort**). Mr. A could not control himself and started attacking people around him (**guaranteeing safety of the patient**). Under such urgency, six registered psychiatric nurses (**qualified personnel**) used cotton ties to restrain Mr. A physically, although Mr. A screamed that it was against his right to freedom (**the patient received coercive approaches**). Afterwards, the nurse-in-charge accompanied Mr. A at his bedside and explained why physical restraint was applied. Eventually, Mr. A admitted he could not control himself at that moment. He said that he will try to ask for help if a similar circumstance happens again. The restraining devices were then removed after medical assessment.

This case portrays all the attributes of physical restraint. Mr. A was receiving treatment in the health care setting, and he abruptly became agitated and attacked another patient (life-threatening risk towards others). Nurses tried the alternative (de-escalation technique) but failed. Then, with the application of the prescribed device (cotton ties), physical restraint was implemented as the last resort by qualified personnel (registered psychiatric nurses).

4.2. Contrary case

Two weeks after Mr. A's discharge, he argued with his neighbour about the political implications if Trump wins the election. The neighbour was unhappy and went home to avoid further conflict. Meanwhile, Mr. A felt his heart beating strongly and fast. He needed to release the anger to avoid shouting and recognised that his situation was worsening. Thus, he applied the self-relaxation technique that he learned from the health education course. Mr. A sat on the sofa and took a deep breath. He closed his eyes and told himself to calm down. Finally, he felt relaxed, and his mind became peaceful.

In this case, none of the attributes was presented. Mr. A had an argument with his neighbour after his discharge, and he recognised that he was about to lose control, so he utilised the technique he learned to ease himself. He eventually avoided the escalation of the situation. Therefore, all defining attributes of physical restraint were absent in this case.

4.3. Borderline case

Mr. P, aged 34, was diagnosed with mania and regularly took lithium carbonate tablets (mood stabilisers). One day, he thought he had fully recovered and discontinued medication, even though he was advised to follow the treatment by his general physician. Mr. P was initially talkative and aggressive, but he suddenly became irritated and verbally assaulted other patients with his fists clenched. Recognising that Mr. P may lose control and assault

others, the nurses activated the alarm system. Two unlicensed nursing assistants and two nursing interns came to the scene and physically restrained Mr. P.

In this case, most attributes were contained. The nurses bodily restrained the patient to ensure the safety of other patients. However, limitations distinguished the borderline case from the model case. On the one hand, the necessary medical assessment and attempt of alternatives were absent, because the nurse-in-charge applied the restraint as soon as he noticed that the patient may pose critical risk to others as he did previously. Therefore, physical restraint was not used as the last resort in this case. On the other hand, physical restraint was applied by unqualified personnel, which was against the rules governing physical restraint application.

5. Antecedents

The antecedents to the application of physical restraint are as follows:

The first antecedent is the improper behavior of patients, including violence and disturbing behavior. On the basis of previous investigations, the application of physical restraint is associated with violence in the health care setting. Patients with mental disorder have high risks of life-threatening behaviors, for example, attacking others, self-injury and suicide [12,35]. Compulsory intervention is ordered accordingly. Thus, physical restraint is regarded as a potential approach when a patient poses serious risks to others and himself. Besides, due to psychotic symptoms, patients may display disturbing behaviors that will disturb therapeutic environments. Nevertheless, nurses are obligated to maintain the therapeutic environment, and physical restraint will be implemented if other alternatives fail to alleviate unmanageable and disturbing behavior [15].

The second antecedent is medical assessment prior to the application of physical restraint. Physical restraint is not a form of treatment but a high-risk intervention, because it evidently causes secondary physical injury and psychological trauma to patients [30,36]. Thus, the prescription of physical restraint should be decided on the basis of rigorous medical assessment. Global consensus states that medical personnel must systematically assess rationality before applying physical restraint. The guidelines claim that registered medical personnel who initiate physical restraint must evaluate the level of risk, medical compliance and physical condition of the patient. Additionally, medical personnel are required to implement alternatives before the restraint, and they are not allowed to conduct physical restraint unless alternatives fail to de-escalate the violence [15,30,37].

The third antecedent is the legislation governing physical restraint. The application of physical restraint has resulted in a major controversy, because it causes clinical and ethical dilemmas [36]. Nurses have been criticised for violating the autonomy of patients, because they offended the right to freedom [38,39]. Clinically, physical restraint should be the last resort to deter life-threatening risks by restraining the patient's physical movement. Mental health nurses have been accused of misconduct and even malpractice, because the use of physical restraint is against a patient's autonomy and causes unexpected adverse effects. Hence, legislations regulating and supervising the clinical use of physical restraint are crucial, because such legislations authorise medical personnel to apply physical restraint during appropriate occasions and in a proper manner. Otherwise, the absence of legislation will result in physical restraint abuse. In summary, legislation is an indispensable antecedent, because it governs the rational use of physical restraint.

6. Consequence

Consequences are incidents that occur as the outcome of the concept [40]. Clinically, the immediate consequence of physical restraint is the alleviation of violence and unmanageable disturbing behaviors. Psychiatrists and nurses are obliged to complete a medical review not later than four hours after the commencement of physical restraint, and they are required to discontinue its use unless the risk is sustained [25].

However, the consequence of physical restraint includes effects on patients, medical personnel and institutions. From the patient's perspective, physical restraint will cause unexpected secondary physical injury, for example, pulmonary disease, skin injury, deep vein thrombosis, nervous system damage, ischemic lesions and even sudden death [5]. The use of physical restraint also results in psychological trauma, including low self-esteem, extreme distress and re-evoking of childhood sexual abuse [41]. Notably, patients who have undergone physical restraint experience low quality of life and sense of hope [42]. Physical restraint is also associated with serious psychiatry. Therefore, using physical restraint will worsen the stigma on restrained patients and consequently influence the adherence to medical treatment [43].

Medical personnel are also exposed to the risk of physical injury while applying physical restraint, which is a crucial factor why mental health service providers apply for sick leaves [44,45]. Furthermore, the application of physical restraint triggers psychological responses from medical personnel. Nurses admit that they have difficulty deciding whether to initiate physical restraint or not. They agree that the use of physical restraint causes moral conflict and even triggers previous trauma in their practice, thereby challenging them to assess the rationality of applying physical restraint [46,47].

Moreover, the uses of physical restraint have intangible positive and negative effects on institutions. In consideration of the adverse effects of the clinical application of physical restraint, mental health settings are urged to promote the quality of care and reduce the use of physical restraint. As a result of such measures, the therapeutic environment is improving continuously [48]. Furthermore, various approaches have been developed to reduce the use of physical restraint, for example, staff training, staffing level, appropriate leadership style, sound regulation and data analysis [15,30,49]. Positive transformations have promoted nursing practice. Nevertheless, the negative effects of physical restraint on institutions are also obvious. Firstly, the application of physical restraint weakens the nurse–patient relationship. Patients feel a sense of distrust while being physically restrained, which indirectly hinders them to seek help from medical professionals and decrease their medication adherence [50]. Furthermore, the continuous use of physical restraint corrupts clinical attitudes within mental health institutions. Medical personnel may adopt physical restraint for convenience or use it as a form of punishment towards patients who cause 'trouble' to their work. Such negative phenomenon will influence other colleagues, particularly newly registered nurses and nursing interns.

7. Empirical referents

Limited empirical referents of physical restraint have been identified, and recent studies have focused on evaluating the level of immediate threat. Generally, the application of physical restraint is associated with risky behaviors. Therefore, instruments are introduced to assess the level of risk based on the psychotic, demographic and social characteristics of patients. The Brøset Violence Checklist and Resident Assessment Instrument–Mental Health are recommended tools for evaluating the rationality of

physical restraint when adult patients pose life-threatening risks to others [51,52]. Tompsett, Domoff and Boxer (2011) proposed the application of the Risk Analysis Checklist for Institutionalised Youth to evaluate the use of physical restraint on adolescent patients in mental health settings [53].

8. Embedded middle range theory

The theory of reasoned action (TRA) appropriately explains nurses' intention to apply physical restraint [54]. The TRA, developed by Fishbein and Ajzen (1975), interprets the relationship amongst intention, behavior and attitude. According to the TRA, behavioral intention is the antecedent of behavior. Behavioral intention is also the possibility that a person will act in a specific manner. Intention is determined by subjective norm and attitude. In terms of subjective norm, it is the perception of others' attitude of the specific behavior, and attitude is the individual appraisal of behavior. Behaviors are usually considered unfavourable or favourable [55]. Conner and Armitage (1998) further developed the TRA and defined perceived moral obligation as "an individual's perception of right or wrong of the specific behavior", because it is another influential factor that explained how intention is affected [56].

Given the concept of subjective norm, attitude and perceived moral obligation, the decision-making procedure is the intention of applying physical restraint. Firstly, the attitude of medical personnel is a vital determinant of intention. A study showed that the use of physical restraint is reduced when the medical personnel's belief has changed [57]. Secondly, with regard to subjective norm, the individual views of personnel (for example, feelings of frustration, powerlessness, uncertainty) influence the decision of applying physical restraint or not [58]. Finally, perceived moral obligation is the acknowledged document (for example, guidelines, codes and acts) that regulates nurses' practice of physical restraint and guarantees quality of care.

9. Discussion and implications on nursing

To the best of our knowledge, the concept of physical restraint provides a useful theoretical framework to future studies exploring its frequency and associated factors in mental health nursing. Analysing the concept of physical restraint is also helpful in developing strategies that would reduce its clinical use, because identified attributes illustrate the basic characteristics of physical restraint. Having summarised the antecedents and consequences, the authors of this study emphasise that further studies should explore possible measures to reduce the use of physical restraint and minimise its unexpected effects on patients and nurses.

Inspired by the TRA, we believe that the intention of implementing physical restraint is closely associated with nurses' personal views and perceived moral obligation. Therefore, reducing the frequency of physical restraint by altering nurses' clinical attitude can be achieved. The authors propose that comprehensive rules governing physical restraint can regulate its clinical application as well as reduce its unnecessary use. Cultivating a positive clinical atmosphere is also crucial, because it has an evident effect on nurses' intention of applying physical restraint.

This concept has several limitations. Firstly, this analysis focuses on the concept of physical restraint in mental health services, and literature regarding other disciplines are not included. Secondly, only the literature published in English is analysed. Including studies published in other languages will provide a precise definition of physical restraint. Lastly, Walker and Avant's (2005) concept analysis method was used in the analysis, definition of physical restraint to be dynamic and developing within the nursing practice.

Therefore, future studies using other concept analysis models will produce different outcomes.

Authors' contributions

This manuscript was in collaboration between all authors. Ye, Xiao, and Liao, defined the theme of concept analysis. Yu, Wang, and Lin retrieved the literature and explained the concept. Ye, Wang, Xia, Xu, and Zhang co-worked on explaining the concept. Ye and Xiao drafted the manuscript, it had been revised and approved by all the authors. Xiao was assigned to be the corresponding author of this manuscript.

Conflicts of interest

All authors declare no conflicts of interest.

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Appendix A. Supplementary data

Supplementary data related to this article can be found at <https://doi.org/10.1016/j.ijnss.2019.04.002>.

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