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# Patient Self-Harm in the Emergency Department: An Evidence-Based Approach

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Additional information is available at the end of the chapter

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## Abstract

Violence, deliberate self harm, and suicide in emergency departments and hospitals is likely to remain a significant problem for health care systems well into the future. Understanding how to confront, intervene, and manage episodes of patient deliberate self harm is extremely important, and can be life-saving. Here, through a clinical vignette, and a discussion of deliberate self harm we will highlight the importance of the direct observation of such patients, containment procedures (seclusion and physical restraints), and the use of pharmacological adjuncts. We hope that this concise, practically-oriented review will provide our readers with foundational understanding of the topic, including the most important theoretical and clinical considerations.

**Keywords:** emergency department, evidence-based approach, patient safety, psychiatric emergency, self-harm

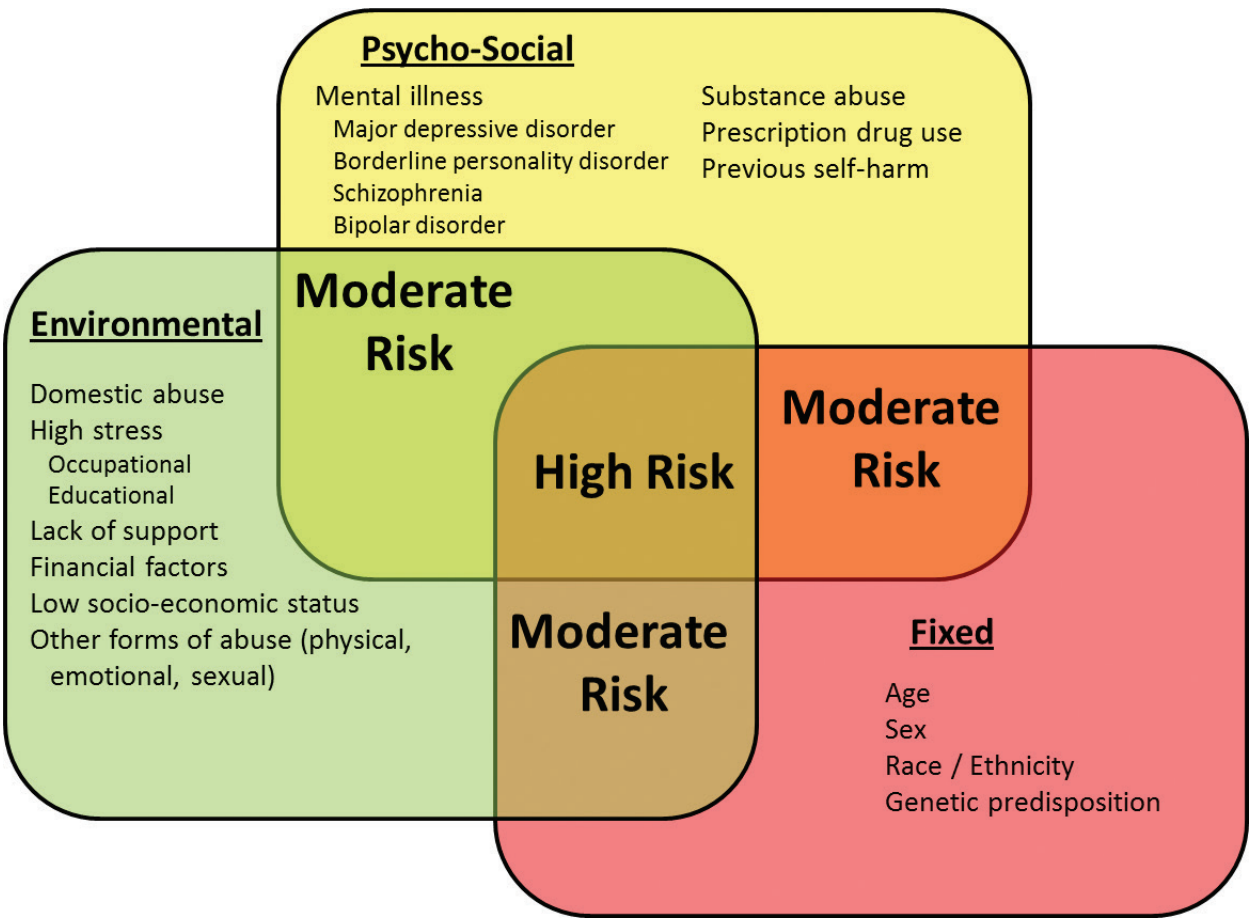
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## 1. Introduction

Violence in the hospital is not a new phenomenon, with health care and social service institutions being disproportionately affected by this serious problem [1, 2]. Also of major concern, every 16.6 min one American dies by suicide, amounting to over 30,000 suicides per year [3]. The prevalence of deliberate self-harm (DSH) in the hospitalized patient population is especially troubling, with one study reporting that DSH may be occurring in nearly 9% of hospital shifts on acute psychiatric wards [4]. Non-fatal DSH has also been called “parasuicide” – a term we will not be using in this chapter for the sake of uniformity and consistency [5].

Fortunately, the vast majority of self-harm events are classified as minor [4]. **Figure 1** shows various factors that may, alone or in combination, result in violent behavior and DSH in the health care setting.

DSH is defined as the intentional act of self-directed injury, irrespective of motivation. Important distinction is drawn between intentional self-directed injury without suicidal intent and an act of attempted suicide [6]. It is important to recognize that hospitalized patient population differs from individuals who engage in DSH across other settings, both in terms of impulsivity and the degree of violence involved during self-harm attempts [7–10]. It has also been noted that certain forms of DSH tend to result in patterns of escalation over time, up to and including suicidal acts [7–12]. The resultant long- and short-term burden is significant, with approximately 20–25% of individuals treated for DSH reporting previous self-inflicted injury [13], and a similar percentage of patients presenting with repeated DSH within 1 year [14]. Among adult patients who seek emergent treatment for self-inflicted injury, about half require admission for behavioral health evaluation and treatment [15, 16]. Despite the grave consequences, there are few standardized ways to reliably determine individual risk of DSH. Furthermore, the assessment of patients who present to the emergency department (ED) with



**Figure 1.** Factors that may contribute to violence and self-harm in the health care setting.

obvious DSH tends to be fragmented and incomplete, with currently employed triage methods in need of significant improvement [17]. This *status quo* is not acceptable, as statistics have shown that a single episode of DSH is associated with 6-fold increase in future suicide risk [15, 18]. The type of DSH, as well as the patient's response to treatment also influence the risk and patterns of subsequent DSH [9, 19]. Finally, the authors believe that the topics of DSH and violent patient behavior are interrelated, and that it is difficult to speak of one without mentioning or discussing the other.

Detailed behavioral health assessment following DSH episodes should commence as soon as the patient is deemed medically stable [20]. There should be an evaluation to determine the presence of any comorbid psychiatric disorders (e.g., depression, substance abuse, personality disorders) [21, 22]. This is critically important because certain psychiatric diagnoses are associated with significant lifetime risk of DSH [23–25]. Specific factors that strongly correlate with risk of future suicide include serious acts of DSH and the associated degree of potential lethality of the self-harming act [26, 27]. The list of proposed risk factors for DSH include young age, male sex, the presence of depression and psychosis, substance misuse, medical comorbidity, impulsivity, aggression, and/or loneliness [22, 28]. There is also evidence suggesting the involvement of specific neurotransmitter imbalances in the overall genesis of DSH [29]. While some factors contributory to DSH may be more readily modifiable (e.g., the availability of effective management of underlying psychiatric condition), some others may be difficult or impossible to influence (e.g., substance abuse, demographic factors). The following case describes a sequence of events secondary to a woman's Emergency Department (ED) admission for an acute psychotic depressive episode. Despite specific precautions being implemented during her ED stay, the patient succeeded in inflicting significant DSH.

## 2. Clinical vignette

A 35-year-old Caucasian female presented to her primary care physician (PCP) on several occasions within the previous 6 months, complaining of increasing fatigue, loss of interest in daily activities, lack of energy, and "feelings of worthlessness". Her husband prompted her to seek treatment after a recent violent episode in which she threatened to harm herself. Following an initial evaluation, the patient revealed that she had contemplated suicide on several occasions and was threatening to ingest a bottle of "sleeping pills" when she returned home later that day. The patient's PCP called emergency medical services for urgent transport to the nearest ED for further evaluation and possible admission. Her husband was notified of the transfer.

Upon arrival, the patient was found to be irritable and aggressive towards hospital staff. She refused to provide a thorough history. Initial vital signs showed hypertension (160/90 mmHg). A toxicology screening was ordered to rule out substance abuse, and was later reported to be negative. The patient was placed in an isolation room due to her increasing agitation and violent behavior. A dedicated chaperone was placed in her room.

Once onsite, the husband was able to provide a thorough past medical history, revealing episodes of postpartum depression after the birth of their first and second child with symptoms mirroring her current presentation. These post-partum depressive episodes occurred 5 and 8 years prior to the current presentation, respectively. He also explained that the patient's mother has been battling major depressive disorder for several years after the death of her husband. The patient's PCP had previously prescribed Fluoxetine for each depressive episode resulting in complete symptom resolution within 6 months. She is currently not taking any medications, with the exception of a daily multivitamin. The husband reports no other illnesses. Past hospitalizations include the births of her three children during which there were no complications.

The patient's current ED clinical course was complicated when she became increasingly agitated and began hitting her head against the padded wall of the isolation room. Her husband's attempts at intervention were unsuccessful. Meanwhile, the chaperone alerted the nearest nursing station and the patient was sedated with 2.0 mg haloperidol intravenously. While under sedation, the patient was restrained using a four-point restraint system. Of note, the initial ECG showed no abnormalities, and telemetry monitoring was implemented during the initial 24 h following haloperidol administration. A physical examination of the patient following this episode of self-harm revealed a large cephalohematoma at the site of the self-inflicted traumatic injury. A cranial computed tomogram (CT) was obtained, revealing a small right subdural hematoma.

As the effects of the sedative abated, the patient became acutely agitated again and attempted to free herself from the previously placed restraints. During the struggle, the patient suddenly cried out in pain and cradled her right arm within the limits of the restraints. The chaperone immediately notified the nursing station of the patient's pain. Upon further examination by the ER resident, there appeared to be a deformity of the right shoulder. Radiographic work-up revealed an anterior dislocation of the patient's right shoulder. During the struggle, the patient also managed to chip her left central maxillary incisor. Her injuries were immediately treated by the Trauma service, including shoulder relocation. Plans were also made for dental reconstruction after patient stabilization.

During the subsequent 24 h, the patient's mental condition improved significantly. She was started on Fluoxetine and did not require any additional active therapy. Within 2 days of admission, the patient was transitioned to routine hospital care, with discharge to home 3 days later. Her post-injury clinic visit at 2 weeks showed uneventful recovery, and she continued to follow-up with her psychiatrist on monthly basis for the first 3 months, then quarterly for the remainder of the initial post-discharge year. After that, her care was transitioned to the PCP and she was continued on long-term maintenance Fluoxetine therapy.

### 3. Discussion

Self-harm is defined as the intentional act of an individual to cause self-directed injury or poisoning irrespective of motivation. The World Health Organization (WHO) further qualifies



this definition as an “act with a nonfatal outcome, in which an individual deliberately initiates a non-habitual behavior that, without intervention from others, will cause self-harm... and which is aimed at realizing changes which the subject desired via the actual or expected physical consequences” [6]. The mode of injury can include cutting, stabbing, burning, skin carving, ingestion, and self-medicating, with more severe episodes of DSH resulting in serious secondary manifestations, such as traumatic brain injuries, infections, skeletal fractures, and even unintended death [30, 31]. In this chapter’s clinical vignette, the patient sustained significant injuries secondary to violent, self-destructive pattern of behavior. While establishing intent is an essential determinant for differentiating non-suicidal self-injury from a suicide attempt, understanding which populations are at greatest risk for DSH is crucial for properly allocating treatment resources and establishing appropriate patient management [31, 32]. The importance of objective and constructive approach by healthcare providers toward patients who present with DSH must be emphasized [33, 34].

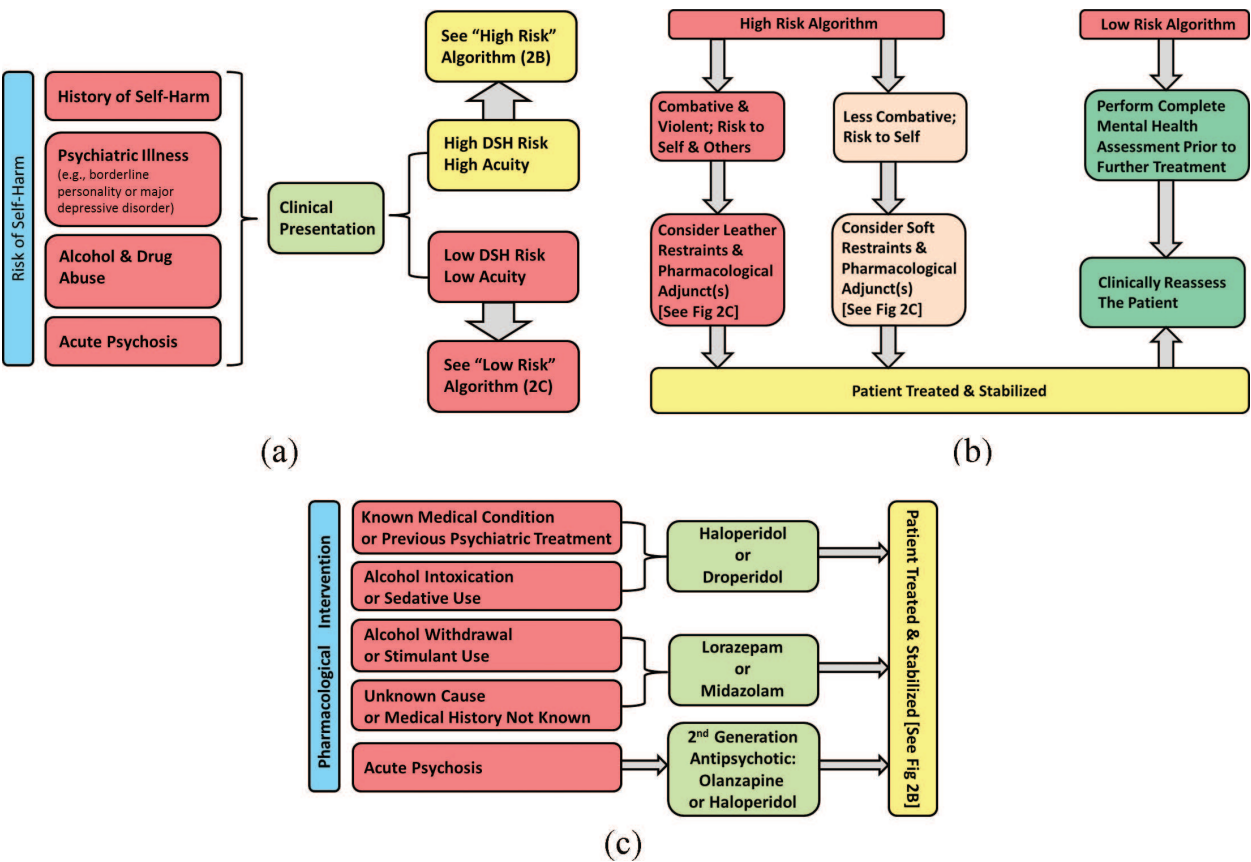
The prevalence of DSH in the United States among adults (regardless of gender or pre-existing mental illness) is estimated to be between 1 and 4%, and this figure is projected to increase [35]. Previous episode of DSH continues to be the primary predictive factor for future DSH, although other parameters must be considered when determining the risk for each individual patient [6]. More specifically, it has been reported that up to 40% of psychiatric patients, independent of illness severity or disorder classification, have reported an episode of DSH [35]. Borderline personality disorder (BPD), marked by patterned instability of moods, behavior, and functioning, is one such condition, with as many as 75% of these patients engaging in self-injury [35]. In addition, it has been estimated that over 40% of patients engaging in DSH also meet the criteria for major depressive disorder (MDD) [35]. Our clinical vignette demonstrates this point well, with the patient having a documented history of depression. Furthermore, more than 75% of patients with substance abuse disorders are estimated to engage in DSH [36]. In the acute setting, a thorough understanding of a patient’s history of psychosis will be instrumental in preventing severe self-injury as well as DSH occurrences.

The need for prompt and effective management of DSH in the healthcare setting stems from the pattern of escalation and the high-risk of mortality among hospitalized patients [12, 37]. Of concern, suicide and DSH are among the leading causes of death in the United States, and their incidence is projected to increase over the next 2 decades [38]. The associated long- and short-term burden is also substantial, with approximately 1 in 4 individuals who are admitted for DSH reporting a previous self-inflicted injury [13]. Among adult patients who seek emergent treatment for self-inflicted injury, approximately half are admitted for further evaluation and treatment [15, 16]. Despite hospital admission, this patient population continues to be at high-risk for subsequent episodes of DSH and suicide attempts following discharge. Nearly 20% of patients who were admitted for DSH-related injury will be evaluated within a year for a repeated self-inflicted injury [14]. Although EDs are usually well equipped to manage acute presentations of patient self-harm, significant risk exists for discharge into the community without a mental health assessment [15, 16]. Furthermore, of those patients who were discharged directly, little more than half seek treatment in an outpatient facility within 30-days of their self-inflicted injury [15, 16]. Because previous DSH is among the strongest predictors of future DSH, inadequate clinical management and/or

follow-up is likely to result in substantial financial and human burden for the community. The best way to improve the *status quo* and prevent repeated DSH events (including hospital readmissions) to proactively reform the medical delivery system. Greater availability of mental health specialists in our EDs, combined with protocols to better transition patients to outpatient treatment can help bridge the gap between acute and long-term management. However, without standardized protocols and procedures, even the best designed infrastructure will be unable to meet the enormous need that currently exists in this clinical arena.

4. Management of patients who engage in self-harm

The primary objective in the clinical management of a patient who engages in DSH in the acute setting is to prevent further injury to self and others. In addition to cognitive strategies and direct patient supervision, methods typically employed include both physical restraints and pharmacological agents. Caution must be exercised in the use of all of the above interventions in this population due to the complexity of the patient’s mental state and the degree of clinical unpredictability. General management pathway for patients who pose acute risk of self-harm is shown in **Figure 2A–C**.



**Figure 2.** General management pathway for patients who pose acute risk of deliberate self-harm; [Part A] Patient risk stratification; [Part B] Management algorithms based on overall risk / acuity; [Part C] Interventional considerations based on suspected / established etiology.

## 5. Direct observation

The use of patient observation assistants (PtOA) or the so-called “sitters” has been utilized to facilitate safer patient environment [39]. Despite the widespread use of PtOAs, there are no clearly defined industry standards regarding key metrics of safety, quality, and effectiveness of this practice [39, 40]. Neither is there firmly established evidence that special observation using PtOAs is efficacious [41]. Nonetheless, the continued need for PtOAs is highlighted by the fact that the other mainstay approaches to preventing DSH—physical restraints and pharmacological interventions—both carry significant rate of complications and a non-trivial risk of mortality [42, 43]. Consequently, the use of PtOAs is considered an important component of the multi-pronged approach consisting of close monitoring and prevention of recurrent self-harm. Of importance, there is evidence to suggest that intermittent observation may be associated with reduced self-harm when compared to constant special observation [4].

## 6. Seclusion

Seclusion in management of severe agitation and/or violence first started in the mid-nineteenth century as an alternative option to mechanical restraint [44, 45]. In brief, seclusion represents involuntary confinement of the patient alone in a room (or another designated area) where the patient is physically prevented from leaving. In 2001 the UK Central Council for Nursing, Midwifery and Health Visiting determined there were no studies of value in using restraints and seclusion in mentally ill patients and could not recommend their effectiveness or use [46]. The fact is that since 2000 the use of what are termed “containment procedures,” i.e., seclusion and restraints, in US psychiatric hospitals has been trending downward [47]. Over the past 10 years best practices have been instituted to limit use of containment procedures in the US to assist mental health professionals in their clinical practices [48, 49]. Additionally, the National Association of State Mental Health Program Directors (NASMHPD) had released its six core strategies for reducing seclusion and restraint use to assist in the development of safe and effective mental health programs [50]. Nonetheless, there have been some reports that show a correlation between reduced use of seclusion and restraints and an increase in patient related violence [51, 52]. However, recent work demonstrated that the implementation of better sound leadership practices, the use of accurate clinical data, developing and training a good workforce, evidence based policies and procedures, along with the use of specialized response teams, behavioral therapy, and the discontinuation of nursing “as needed” orders for restraint and seclusion use resulted in better patient outcomes and more favorable behavioral patterns [44, 53]. When the above mentioned educational, clinical, and administrative best practices are combined with sensory modulation there can be marked reductions in disturbances and a dramatic drop in the use of seclusion [54]. It is critical to ensure both safety and dignity of the patient when using restraints or seclusion.



## 7. Physical restraints

Approximately 50% of intensive care unit patients [55], 20% of patients on neurology-neurosurgery wards [56], and 25% of individuals admitted to mental health facilities experience at least one type of “control intervention” during acute hospitalization [57]. One method of such “control intervention” is the use of physical restraints (PhyR), defined as any device, material or equipment attached to or near a person’s body, which is intended to prevent a person’s free body movement to a position of choice and/or a person’s normal and unrestricted access to their body [58]. The use of PhyR is relatively common, with some authors suggesting that it is overused [43, 59]. As a consequence, there are numerous initiatives to reduce the reliance on PhyR, especially among the most vulnerable patient populations [60–62]. As mentioned in this chapter’s clinical vignette, restraints may not eliminate the risk of DSH. Therefore, the choice to use PhyR continues to be controversial and should only be entertained as a last resort option when there exists a real possibility of serious physical injury to self or others [63–65]. There is therefore a need for caution and balanced judgment on part of the treatment team, beginning with a well-informed understanding of potential complications and safety procedures designed to prevent adverse outcomes [63–65].

Published guidelines provide a framework for the use of PhyR in a variety of settings [66, 67]. The initial criteria for instituting PhyR should be based on a thorough evaluation of a patient’s mental status. An individual at risk for DSH, who is cognitively aware of this risk of harm to themselves, is less likely to become violent while in restraints and can therefore be placed in a soft restraint apparatus [56]. However, in the event that a patient becomes increasingly violent when actively restrained, there is an increased risk of limb injury due to a tendency for the device to tighten [68]. Moreover, patients who are restrained and sustain secondary trauma are prone to more serious injuries because part(s) of their body is/are physically tied, which may render normal protective, instinctive responses ineffective. Other complications of soft restraints include abrasions, contusions, immobility, and dislodgement of various devices (e.g., intravenous lines, feeding tubes) [68–71]. In some cases, leather restraints can be utilized if the patient becomes increasingly combative; however, appropriate precautions are critical when using leather PhyR because device removal can be challenging in emergent situations [70].

The specific placement of restraints and number of application points are important in ensuring the balance between satisfactory outcomes and minimizing complications [56, 58, 72]. If the patient poses a low risk of violence, a two-point restraint system can be utilized safely [70, 73]. Four-point restraints should be reserved for combative and violent patients in the acute setting to maximally prevent uncontrolled movements [70]. Again, applicable guidelines should be followed to reduce restraint-related complications (e.g., self-injury, overturning of the stretcher) while ensuring adequate immobilization of the patient [70, 74]. Belt and jacket restraints can serve as adjunct to extremity restraints, but mandate special precautions, such as the concurrent use of full side rails [75, 76].

Consideration must also be given to the immobilized patient’s positioning, including appropriate contingency plans if complications occur. If restrained while prone, patients may be in danger of suffocation. Consequently, if this position is utilized, the patient must

General considerations
Detailed documentation of all restraint-related clinical decisions and procedures should be made in the medical record
Duration of restraint use should be firmly justified and continue for the least amount of time applicable
In all instances of mechanical restraint use, an individualized clinical management plan should be established and followed
Information regarding the restraint procedure should be given to the patient
Mechanical restraints should be utilized in “last resort” capacity when all other interventions have failed
Periodic re-evaluation, as frequent as every 30 min, should be performed to determine the need for continuation of restraints
Restraints should always be utilized under the supervision of a qualified physician/practitioner
Restraints should be placed and removed in team setting by sufficient number of staff members to prevent patient harm
The use of restraints for discipline or staff convenience is forbidden an illegal
Vital signs should be monitored at all times during mechanical restraint period
Specific indications for mechanical restraints
Facilitation of diagnosis through behavioral control under conditions requiring minimal or no medication use
Facilitation of the development of a therapeutic alliance with the patient
Mitigation of staff fears/anxiety
Physical containment
Protection of the patient, other patients, staff, and/or property
Provision of a respite for regaining control
Reduction of overall stimuli
Repression/control of aggression

**Table 1.** Important considerations for placement and maintenance of mechanical restraints.

be provided with adequate space for free chest expansion and his or her respiratory and airway status must be closely monitored [77, 78]. If restrained while supine, patients are at risk for aspiration [79]. Thus, the patient’s head should be positioned at 30° with the ability to rotate freely in order to avoid this complication [70, 79]. Moreover, optimal configuration of 4-point restraints calls for one arm being directed up toward the patient’s head and the other arm down toward the patient’s hip. Aside from these positional considerations, additional precautions must be instituted regarding prolonged immobilization due to the risk of pressure ulcers, focal neurovascular compression, and deep vein thrombosis [70, 80].

In addition to various potential physical complications inherent in the use of restraints, patients may experience significant emotional trauma from the ordeal, such as feelings of powerlessness, humiliation, and/or the sensation of terror seen with PhyR [81]. Common manifestations of restraint-related psychological trauma include “flashbacks” to the emotional ordeal (e.g., retraumatization), hopelessness and helplessness (e.g., “broken spirit”),

negative general psychological impact, and perceptions of unethical healthcare practices [82, 83]. All of the above factors must be considered when implementing PhyR, although they should not prevent the use of restraints if clinically justified and necessary [84, 85].

Due to the potential for severe complications and even mortality associated with PhyR use, the Joint Commission established protocols pertaining to the usage of restraints in the healthcare setting [86]. Restraints need to be justified, well documented, and monitored at all times to help minimize the risk of iatrogenic injury [87]. Current guidelines recommend the restraint use for children ages < 9 years be limited to 1 h; 2 h for adolescents ages 9–17 years; and 4 h for adults before mandatory clinical re-evaluation [70, 88]. These precautions are necessary to minimize both the physical and psychological complications of PhyR use [89, 90]. Details regarding indications and maintenance of mechanical restraints are provided in **Table 1**.

## 8. Pharmacological “restraints”

The high complication risk of PhyR has led to the increased use of pharmacological agents, as either monotherapy or polytherapy, in the management of high risk patients at risk for DSH. In fact, the prevalence of chemical restraints in certain settings exceeds 33% [91]. At times, pharmacological approaches are used in conjunction with PhyR [92]. Some of the most common pharmacological agents used in psychiatric emergencies include haloperidol, droperidol, lorazepam, olanzapine, and midazolam [93–95]. Due to the ethical considerations of PhyR, these pharmacological agents are often first line therapy in a patient who is at acute risk for self-harm. Multi-modality, high intensity, or combined therapy is often employed when a patient becomes acutely violent or combative, thus posing as an immediate danger to both themselves and others [95, 96].

Haloperidol is a butyrophenone antipsychotic agent with onset of action within 30–60 min of administration and clinical effect lasting up to 24 h [97]. Haloperidol is commonly used in the setting of psychosis and self-harming behaviors because of its minimal drug interactions with non-psychiatric medications, which is essential due to the challenge of obtaining a medical history from acutely agitated patients. In a study of ED patients with agitated, threatening, or violent behaviors, haloperidol resulted in significant clinical improvement within 30 min of administration in 83% of patients [98]. Furthermore, due to the lack of interactions and relatively favorable safety profile, this medication is used as first-line therapy for patients at risk for DSH [99, 100]. Caution is nonetheless necessary due to some rare, yet potentially serious adverse events associated with haloperidol use. The most prominent side effect includes extrapyramidal syndrome and dystonia, which can occur in up to 20% of patients [97]. Haloperidol can also increase the QTc interval, cause torsade de pointes, and even sudden death. Consequently, patients should optimally undergo an ECG prior to haloperidol administration [101].

Another agent, droperidol, may be considered when immediate sedation is required [102]. Droperidol has a rapid onset of 15–30 min, making it more suitable for acute situations

[103]. It has been reported that droperidol can be given intramuscularly at a dosage up to 10 mg to have the same efficacy as other sedatives [103]. Of note, a prior history of cardiac disease is a contraindication due to a black box FDA warning for fatal cardiac arrhythmias when intravenous doses exceed 2.5 mg [104]. This warning carries a strong recommendation to precede the use of droperidol with an ECG to screen for any cardiac abnormalities. Other side effects include the risk of developing dystonia or akathisia [105]. These symptoms can be ameliorated through the co-administration of histamine (H1) antagonists such as Diphenhydramine or Promethazine [106]. Importantly, precautions should be taken when using droperidol (and other similar agents) as adjunctive therapy to mechanical restraints due to potentially elevated risk of suffocation or positional asphyxia [107].

There is a paucity of research on acute manifestations of DSH in patients under the influence of cocaine. The existing literature recommends the use of lorazepam as the primary agent of choice for physiological alterations secondary to cocaine use [108]. This medication can also be used as first-line therapy for patients experiencing withdrawal from alcohol or recreational stimulants, as it has been shown to be more effective than neuroleptic drugs, such as haloperidol [109]. However, due to its CNS depressive effects and long-duration, Lorazepam should not be used if a patient appears intoxicated or if he/she has ingested other sedatives [104]. Further precautions should be taken in patients of childbearing age as this medication is a class D agent in the setting of pregnancy [70].

Olanzapine, a second generation thienobenzodiazepine antipsychotic, may also be considered in cases of acute psychosis with associated DSH [110]. This medication, which antagonizes dopamine and serotonin, is equally as effective as lorazepam and haloperidol in the acute setting [70]. However, a thorough history is necessary before using this drug as it can lead to hypotension when combined with anti-muscarinic medications [70]. Currently, there is limited understanding of the use of this medication in patients presenting with acute psychosis, as well as substance abuse [111, 112].

Midazolam (a benzodiazepine) is indicated for situations where short duration of action is desired [113, 114]. Midazolam has similar efficacy to lorazepam or haloperidol and may therefore be beneficial in patients who do not require long term management and whose risk of DSH may be related to substance abuse and acute intoxication [109]. Furthermore, due to its short action, its systemic effects on the patient quickly wear off, allowing subsequent evaluations, discharge from the ED, and transition to outpatient setting in a more timely fashion [70].

Other agents have been described in the management of acute behavioral disturbances, including DSH, but the limited scope of this chapter does not permit a more in-depth discussion [103, 104, 114–119]. In all similar cases, the goal is to medically stabilize the patient and then prevent recurrent episodes of self-harm [115]. It is important to note that while our discussion describes largely a local pattern of practice, a number of effective professional guidelines have been published in this general area. Consequently, the reader is referred to those guidance documents for further information regarding the

overall diagnostic framework and the associated implementation of both physical and pharmacological restraints [120–123].

## 9. Management and prevention of deliberate self-harm: key points

Emergency management of acutely violent patients, especially those involved in DSH, can be challenging [124]. Similar to many other medical conditions, prevention of DSH should be given the highest priority. This includes prevention of both initial and recurrent episodes of DSH [125, 126], especially since repeated self-harm is associated with long-term, cumulative risk of death [127]. Many patients who inflict self-harm can be treated quickly and effectively, without the need for clinical escalation. The initial approach to escalation usually involves close direct observation [39–41] and the provision of an injury-proof, secluded environment [128, 129]. However, individuals who continue to exhibit behaviors that constitute danger to self or others may require the implementation of physical or pharmacological restraints, i.e., containment procedures [70, 72, 117]. Because of the significant risk for potentially serious complications associated with the use of restraints, special care and attention is required in such situations [129–131]. Additionally, we highlighted progressive views regarding containment procedures and how they can be implemented effectively, while at the same time referencing their drawbacks. Once the patient has stabilized clinically, a combination of psychosocial and pharmacological approaches is utilized to prevent repetitive self-harming behaviors [125, 132]. Multidisciplinary teams including primary care practitioners, community and behavioral health experts provide the best framework for long-term recovery [133, 134].

## 10. Conclusions

DSH will continue to be a challenging problem that confronts health care providers in the ED (and other areas of the hospital). The approach to such patients must be multidisciplinary and occur in an evidence-based environment. Practitioners must be aware of their hospital protocols used to address patients who present with DSH. Detailed behavioral health assessment following DSH episodes should be completed as soon as the patient is medically stable. Specifically, an inventory of comorbid psychiatric disorders that put a patient at risk for DSH, especially suicide, must be catalogued as well as a determination of the presence of associated risk factors that may contribute to an escalation of illness severity. The practitioner must also become well versed in the use of direct observation, containment procedures (seclusion and physical restraints), and pharmacological restraints, as well as an appreciation as to the direction of new clinical evidence regarding care and the promulgation of new legislation. Clinical approaches and legal perspectives in this field will continue to evolve.



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