

## RESEARCH ARTICLE

# Self-harm in Child and Adolescent Psychiatric Inpatients: A Retrospective Study

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### Abstract:

**Objective:** This study presents a comprehensive report of children and adolescents who engaged in self-harm during their admission to a psychiatric inpatient unit. **Method:** A chart review was conducted on all admissions to an acute care psychiatric inpatient unit in a Canadian children's hospital over a one-year period. Details on patients with self-harm behaviour during the admission were recorded, including: demographics, presentation to hospital, self-harm behaviour and outcome. Baseline variables for patients with and without self-harm behaviour during admission were compared. **Results:** Self-harm incidents were reported in 60 of 501 (12%) admissions during the one-year period of the study. Fourteen percent of patients (50 of 351) accounted for total number of 136 self-harm incidents. Half of these incidents (49%) occurred outside of the hospital setting, when patients were on passes. Using the Beck Lethality Scale (0-10), mean severity of the self-injury attempts was 0.33, and there were no serious negative outcomes. **Conclusion:** Self-harm behaviour during inpatient psychiatric admission is a common issue among youth, despite safety strategies in place. While self-harm behaviour is one of the most common reasons for admission to psychiatric inpatient unit, our understanding of nature of these acts during the admission and contributing factors are limited. Further research is required to better understand these factors, and to develop strategies to better support these patients.

**Key Words:** self-harm, suicide, children and adolescents, inpatient

### Résumé

**Objectif:** Cette étude présente un rapport détaillé sur les enfants et les adolescents qui se sont adonnés à l'automutilation durant leur séjour dans une unité d'hospitalisation psychiatrique. **Méthode:** Un examen des dossiers a été mené pour toutes les admissions à une unité d'hospitalisation de soins actifs psychiatriques dans un hôpital pour enfants canadien sur une période d'un an. Les détails sur les patients ayant des comportements d'automutilation durant leur séjour ont été enregistrés, notamment : les données démographiques, la présentation à l'hôpital, le comportement d'automutilation et le résultat. Les variables de départ pour les patients avec et sans comportement d'automutilation durant leur séjour ont été comparées. **Résultats:** Des incidents d'automutilation ont été signalés chez 60 sur 501 (12 %) hospitalisations durant la période d'un an de l'étude. Quatorze pour cent des patients (50 sur 351) représentaient le nombre total des 136 incidents d'automutilation. La moitié de ces incidents (49 %) sont survenus à l'extérieur de l'hôpital, quand les patients bénéficiaient d'un laissez-passer. À l'aide de l'échelle de létalité de Beck (0-10), nous avons déterminé que la gravité moyenne des tentatives d'automutilation était de 0,33, et qu'il n'y avait pas de résultats négatifs sérieux. **Conclusion:** Le comportement d'automutilation durant le séjour des patients psychiatriques hospitalisés est un problème commun chez les jeunes, malgré les stratégies de sécurité en place. Bien que le comportement d'automutilation soit l'une des raisons les plus fréquentes de l'hospitalisation dans une unité psychiatrique, notre compréhension de la nature de ces actes durant l'hospitalisation et des facteurs contributifs est limitée. Il faut plus de recherche pour mieux comprendre ces facteurs et pour élaborer des stratégies afin de mieux soutenir ces patients.

**Mots clés:** automutilation, suicide, enfants et adolescents, patient hospitalisé

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## Introduction

Deliberate self-harm (DSH) in youth is a serious emerging concern. Suicide is the second leading cause of death in people aged 15-24 years old worldwide (World Health Organization, 2011). For every 400 suicide attempts, 100 require medical attention and one results in completed suicide (Cutler, Glaeser, & Norberg, 2001). Those who engage in DSH, regardless of intent to die, are at increased risk for later suicide attempts and completed suicide (Chen et al., 2011; Cooper et al., 2005; Asarnow et al., 2011). DSH in youth is one of the most frequent reasons for psychiatric inpatient admission in this age group (Peterson, Zhang, Santa Lucia, King, & Lewis, 1996). While one of the key intentions of admission to an inpatient unit is to keep patients safe (Bowers et al., 2005), the clinical management of self-harm behaviour in psychiatric inpatient settings remains a challenge.

“Deliberate self-harm” is a general concept encompassing a range of non-fatal non-suicidal self-injury to completed suicide (Hawton, Rodham, Evans, & Weatherall, 2002). The rate of completed suicide in adults ranges from 100-400 per 100,000 admissions to psychiatric inpatient units (Dong, Ho, & Kan, 2005). DSH in inpatient settings is associated with significant increased cost (Flood, Bowers, & Parkin, 2008), negative emotional impact on nursing staff (James, Stewart, & Bowers, 2012) and increased risk of serious negative outcome such as death (Cooper et al., 2005). Strategies intended for safe management of DSH, such as constant observation, have been shown to negatively impact patients’ sense of well-being (Breeze & Repper, 1998) and require intensive resources. There are several risk factors associated with inpatient DSH in adults, including history of previous suicide attempts, relationship difficulties, personality disorders, treatment-resistance, and depressive disorders (Cheng, Hu, & Tseng, 2009; Neuner, Schmid, Wolfersdorf, & Spießl, 2008; Tishler & Reiss, 2009). Gender differences in inpatients are similar to the general population with more women engaging in DSH and male dominance for completed suicides (Tishler & Reiss 2009; Mills, 2013). Younger age is a risk factor for engagement in DSH. In the general population, the rate of suicide attempts is approximately ten times higher in those 15-29 years old compared to older adults (>65) (Jacobs et al., 2003).

Although, many studies on DSH have been conducted on a sample of psychiatric youth inpatients, most of those studies focused on DSH during life time or following admission (Liu et al., 2014; Prinstein et al., 2008; Boxer, 2010; Nixon, Cloutier, & Aggarwal, 2002). Even though their patient population was inpatient adolescents, there is no reports on any self-harm that occurred on the inpatient unit. Surprisingly, data relating to DSH during psychiatric inpatient admission in children and adolescents is scarce. A brief summary of available studies are provided below.

Fritsch et al. (Fritsch, Heinszen, Delga, Goodrich, & Yates, 1992) used the existing data on 145 inpatient adolescents to assess the relationship between past patterns of aggression (internal, external or both) and behaviour during first month of admission. They also evaluated patterns of aggression based on diagnoses; 55% of the patients in the self-harm group had a diagnosis of depression, 74% of external aggression group had conduct disorder and 42% of patients with history of both types of aggression had concurrent depression and conduct disorder. Their results suggested patients with a past history of internal aggression were more likely to commit self-destructive acts during their admission. There were no additional details on self-destructive behaviour on the inpatient unit.

Barton et al. (Barton, Rey, Simpson, & Denshire, 2001) evaluated patterns of critical incidents including aggression, self-harm and leave without notice during adolescent inpatient admissions. Between 1993-1995, they reported the frequency of self-harm incidents by method: cutting in 11%, ingestion in 6% and other methods in 12% (n=243). They described a female predominance (51% vs 7%), categorized one-third of the acts as “severe”, and noted the majority of incidents occurring during the evening. There was no further information with regards to other methods of self-harm or how severity was assessed.

In a retrospective study, Brentsen et al. (2011) evaluated patterns of self-harm and aggressive behaviour among adolescent inpatients over the course of three years (n=294). They reported that 12% of patients engaged in self-harm behavior. There was a three-fold reduction of incidents of self-harm from 60 incidents in 2006 to 20 incidents in 2008. The authors concluded a combination of strategies including initiation of Dialectical Behaviour Therapy, increasing structured activities as well as changes in nursing staff contributed to such a reduction.

Phillips et al. (Phillips, Stargatt, & Brown, 2012) assessed the predictive validity of an unstructured clinical risk assessment tool for self-harm and aggression. During admission it was found that 16.1% of adolescents (n=193) engaged in self-harm behaviour. There were no reports on methods, severity or circumstances in which self-harm incidents occurred.

When it comes to developing new strategies to improve safety of patients, the first step is to identify the safety risk and also its magnitude. Apart from the few studies listed above, we did not find any further studies with a primary focus on self-harm in children and adolescent psychiatric inpatient care. This study is unique in providing a comprehensive description of adolescents who engaged in self-harm behaviour during their admission to a Canadian acute care psychiatric inpatient ward during a one-year period.

The specific objectives were to:

- 1) estimate the rate of DSH in a youth inpatient unit at an acute care hospital;
- 2) provide detailed description of self-harm incidents including patient characteristics, method, setting, timing, severity and subsequent events including resulting complications; and,
- 3) provide grounds for future research with the goal of improving care for these patients. Following initial data analysis, exploratory analyses were used to generate hypotheses about potential predictors of self-harm during the admission.

## Methods

### Definition of self-harm

For the purposes of this study, self-harm refers to intentional acts of self-injury regardless of suicidal intention (Hawton, Saunders, & O'Connor, 2012). We chose to avoid differentiating between suicidal and non-suicidal self-injury for the following reasons: (1) the motive of self-harm behaviour is not always clear, particularly in retrospective chart review; (2) some patients may report suicidal intent but the actual self-harm act may seem as non-suicidal self-injury (e.g. cutting superficially in front of others) (Hawton, et al., 2012); (3) some patients are ambivalent about whether or not they die during an act of self-harm; (4) one act of self-harm can also have multiple functions; and, (5) differentiation of these may give more weight to the acts with suicidal intent; when non-suicidal self-injury behaviour may be equally result in serious negative sequelae and is a potent predictor of eventual suicide (Mangnall & Yurkovich, 2008; Gratz, 2001; Arasnow et al., 2011).

Self-harm behaviours included cutting/scratching (includes opening previous wounds), ingestion/overdose, asphyxiation (hanging, choking and strangulation), electrocution, burning, and drowning. Behaviours such as punching the wall, destruction of property and head-banging were excluded; although these behaviors potentially could cause harm to one's self, they are usually displayed in the context of outward aggression and may not necessarily be associated with intention to harm or injury to self. Furthermore, head-banging is frequently seen as a stereotypic movement in children and adolescents with neurodevelopment disorders. It becomes challenging to distinguish such behaviour that occur in the context of stereotypy versus self-harm.

### Terminology

In this article, the term "inpatient self-harm group" refers to patients who engaged in self-harm behaviour during their admission and "no self-harm group" refers to the rest of the patients without such behaviours on the inpatient unit. These terms do not include history of self-harm outside of current admission. The "index self-harm event" refers to the

self-harm episode leading up to admission (if it is relevant to that particular patient).

## Study Design and Participants

This project received ethics approval from Research Ethic Board (REB) of Children Hospital of Eastern Ontario (CHEO). The design is a retrospective, descriptive and case-control study. The outcome variable was self-harm. Multiple predictor variables were assessed. We reviewed medical charts of all consecutive admissions during the one-year period of 2014 to an acute-care psychiatric inpatient unit at CHEO, Ottawa, Ontario, Canada. The following information was extracted for all of the admissions: gender, age, initial presentation to hospital (including mode of transportation, chief complaint, and severity of self-harm behaviour at presentation if applicable), and admission status (voluntary versus involuntary). For patients who engaged in self-harm behaviour during the admission, data on demographics, diagnosis, details about the self-harm incident(s) and subsequent events were gathered. The subsequent events and resulting complications of self-harm were described using the following factors: (a) whether patient required assessment by on-duty physician; (b) what type of intervention (medical and containment measures) was employed; and, (c) was there any serious complication such as death or transfer to ICU services. Psychiatric diagnosis was established for each patient using clinical impression of the treating psychiatrist at discharge. The Lethality Scale was used for rating the severity of self-harm behaviour.

For all patients, passes (ranging from a few hours to a full weekend pass) were issued by the treating psychiatrist; prior to leaving the hospital for pass, a psychiatric nurse or Child and Youth Counsellor (CYC) reviewed a safety plan with patient and their caregiver which includes identifying triggers, coping strategies and crisis plans. All inpatient unit staff, including nurses and CYCs, have introductory training in the Collaborative Problem Solving (CPS) model (Greene, 2011).

The current unit policy aims to prevent self-harm and suicidal behaviour through various measures. In summary, patients are informed about the unit policy of no self-harm behaviour during the admission process. Patients' belongings are searched for access to any means of self-harm, upon admission and after returning from passes. Any objects with potential for use as a mean of self-harm (e.g. scissors) is limited to use under direct supervision of staff, if needed. Following occurrence of a self-harm incident, patients are typically asked to complete a Behavior Chain Analysis (Linehan, Armstrong, Suarez, Allmon, & Heard, 1991) and implementing distress tolerance or distraction techniques, with front-line staff facilitation if required. If a patient continues to put themselves or others at risk and all non-invasive strategies to de-escalate have been exhausted, the level of intervention progresses in a step-wise fashion. First the

level of observation would be increased, followed by containing the patient in their room, followed by chemical or physical restraint only if absolutely necessary, assessed on a case-by-case basis.

*The Lethality Scale (LS)* (Beck, Beck & Kovacs, 1975) is a clinician rating tool which measures lethality of a suicidal behaviour based on eight possible methods (shooting, burning, drowning, cutting, jumping, hanging, coma-producing and non-coma producing drug overdose) on a scale from 0 (no damage) to 10 (death). Ratings are based on the medical condition of the patient following a self-harming behaviour and determined by review of the medical charts. This scale has shown good interrater reliability in previous studies (correlation coefficient 0.80) (Lester & Beck, 1975; Brown, 2001). The principle investigator (NZ) administered the scale based on chart review.

### Analysis

We used Microsoft EXCEL (2012) to run a descriptive statistical analysis and comparison analysis.

Eight patients had more than one admission during which they engaged in self-harm behaviour. Including multiple admissions of the same person in the data analysis could skew the descriptive report as these would not be independent observations. As such only the first admission with a self-harm incident was included in the tables. Similarly, only the first admission of the control group was included in analysis.

T-test and Chi-square tests were conducted to evaluate predictors of self-harm during admission, including: age, gender, mode of transportation to hospital, whether or not self-harm was the prompting event leading to the emergency room visit, and involuntary status on admission. As this analysis was intended to be hypothesis-generating (as opposed to hypothesis-testing), we did not adjust *p*-values for multiple comparisons. Whenever there was a significant statistical association between two variables ( $p < 0.05$ ), odds ratios were reported.

## Results

### Clinical profile of participants

A total number of 351 patients were admitted to the psychiatric inpatient unit during the one-year period of study. The total number of admissions was 501. Some of these patients had multiple admissions during the study period: 63 patients had two admissions, 27 had three admissions and nine had more than three admissions (range: 4-6). Sixty-eight percent of the total participants were female. Mean age of the participants at the start of the index admission was 15.1 years (SD 1.8; range: 8-17).

### Self-harm during admission

One-hundred and eight self-harm incidents were recorded over the one-year period of the study, excluding incidents that occurred during repeat admissions of the same patient. Fourteen percent ( $n=50$ ) of patients engaged in self-harm behaviour during their admission (see Table 1 for a description of patients who self-harmed). Cutting was the most common form of self-harm. Only two self-harming patients had no history of self-harm prior to hospitalization. Many self-harm incidents occurred while the patient was on pass. The self-harm tended to be of very low lethality (see Table 2 for details on self-harm incidents during admission).

### Comparison of presentation to hospital

An index self-harm event (self-harm behaviour just prior to presentation to hospital) was more common among the inpatient self-harm group ( $\chi^2(1, N=351) = 4.98, p = 0.025$ ; OR: 1.97 CI 95%: 1.07-3.61). Cutting, as a method of self-harm on presentation, was more frequent among the inpatient-self-harm group compared to the no self-harm group ( $\chi^2(1, N=146) = 5.51, p = 0.018$ ; OR: 2.8 CI 95%: 1.2-6.9). There was no significant difference on mean lethality scale score of index self-harm event between inpatient self-harm (1.4) versus no self-harm (1.7) groups, ( $t(144) = 0.96, p = 0.33$ ).

The no-self-harm group had more than twice the odds of being admitted involuntarily ( $\chi^2(1, N=351) = 4.98, p = 0.025$ , OR: 2.33, CI 95%: 1.1-4.9) (see Table 3 for details).

## Discussion

The result of this study indicates 14% of adolescents admitted to psychiatric inpatient unit engaged in self-harm behaviour while admitted. This rate is similar to 16.1% rate reported by Phillips et al. (2012) in a sample of 193 adolescent inpatients.

Eighty percent of patients who self-harmed during admission were female; this gender difference fell short of statistical significance with a *p*-value of 0.056. Female predominance for self-harm behaviour in an adolescent inpatient setting was reported by Barton et al. (2001). Barton et al. reported self-harm was more likely to occur among female patients with adjusted odds ratio of 3.9. Consistent with Fritsh et al.'s study (1992), most of the self-harm group in our sample had a previous history of self-harm behaviour.

Approximately half of the self-harm incidents occurred when patients were on passes despite current safety planning strategies. Possible explanations include decreased supervision and increased access to self-harm means on passes, lack of support of trained staff, and exposure to usual triggers of self-harm for the individual patient. Furthermore, patients are usually tried on passes as they get closer to their discharge. Self-harm behaviour on passes might even suggest unpreparedness or unwillingness of patients for upcoming discharge. This signifies the need for future

Table 1. Descriptive details of inpatient self-harm group (n=50)	
Age	Mean (SD): 15.34 (1.4) Range:12-17
Female gender	40 (80%)
Living arrangement	Family Home: 44 (88%) Foster home: 1 (2%) Group home: 2 (4%) Other: 3 (6%)
Caregiver	Biological parents: 15 (30%) Parent + step-parent: 8 (16%) Single parent:18 (36%) Other: 5 (10%) Two household: 4 (8%)
Number of previous admissions	Mean (SD): 1.08 (1.25), Range: 0-6
Past history of self-harm	48 (96%)
Diagnosis <sup>a</sup>	MDD: 36 (72%) Anxiety disorder: 18 (36%) Substance use: 13 (26%) BPD features: 11 (22%) Parent-child relation issues:10 (20%) PTSD/Trauma History: 8 (16%) Eating disorder: 7 (14%) Adjustment disorder: 5 (10%) ADHD:5 (10%) OCD: 3 (6%) Psychosis: 2 (4%) Developmental delay: 1 (2%) Oppositional defiant disorder: 1(2%) Depersonalization disorder:1 (2%)
Length of stay (days)	Mean (SD): 15.6 (10.2); Range: 4-64
Discharge living arrangement	Back to previous living arrangement: 47 (94%) Transfer to another hospital: 3 (6%)
<sup>a</sup> 40 of them (80%) had more than one diagnosis; MDD = Major depressive disorder; BPD = Borderline personality disorder; PTSD = Post-traumatic stress disorder; ADHD = Attention-Deficity Hyperactivity Disorder; OCD = Obsessive compulsive disorder.	

studies to look into factors associated with self-harm while on pass and improve safety assessment and current strategies. Potential measures to further support these patients may include working on a more detailed and individualized safety planning before leaving and encouraging regular contacts with inpatient staff while on pass. Since caregivers could play an important role on preventative strategies while on pass and after discharge, providing more support and educations for caregivers (e.g. holding workshops, educational sessions, and providing handouts) are other potentially helpful strategies.

Of those self-harm incidents which occurred on the unit, 43% happened in the evenings, excluding incidents took place over the weekends. As similarly reported by Barton et al., (2001), increased self-harm in the evening may be

caused by decreased structured activities, decreased supervision and increased access to means. It would be interesting to study whether or not increasing the amount of structured activities or increasing staffing in the evenings would decrease rates of self-harm. In our study only one out of 24 reported self-harm incidents took place after midnight (at 00:30) and before the morning routines.

All of the incidents of self-harm were mild, based on the lethality scale score. This was different from Barton et al.'s study (2001) which reported severe self-harm incidents one third of the time among their adolescent inpatient population. There were no serious negative outcome resulted by self-harm in the current study. This might be explained by effectiveness of current strategies and lack of access to potentially lethal means which is consistent with

Table 2. Self-harm incidents during admission*	
Number of self-harm incidents per admission (among the self-harmers)	Mean (SD):2.2 (2.3) Range 1-14
Method	1. Cutting/Scratching: 64 (54.2%) 2. Ingestion/Overdose: 11 (9.3%) 3. Asphyxiation: 34 (28.8%) 4. Electrocuting: 2 (1.7%) 5. Burn: 6 (5.1%) 6. Drowning: 1 (0.84%)
Lethality Scale Score	Mean (SD): 0.33 (0.56), Range: 0-3
Setting	In private**: 32 (29.6%) In front of the staff: 24 (22.2%) On pass: 52 (48.1%)
Timing of the incident	Day time: 15 (13.9%) Evening: 24 (22.2%) Weekend: 17 (15.7%) Pass: 52 (48.1%)
Subsequent events	
Assessment of the injury by physician	Not required: 99 (91.7%) Required: 9 (8.3%)
Consultation of other services	Not required: 104 (96.3%) Poison control: 3 (2.8%) Gastroenterology: 1 (0.9%)
Medical Interventions	Not required: 95 (88%) Blood work: 2 (1.8%) X-ray: 2 (1.8%) Steri strips:1(0.9%) Total: 8 (7.4%)
Containment measures	Chemical Restraints: 6 (5.5%) Physical restraint: 4 (3.7%) Seclusion: 2 (1.8%)
Serious outcome:	Transfer to medical floor: 0 Transfer to ICU: 0 Death: 0
*42% of patients self-harmed multiple times so some observations are not independent ** refers to patient's room which include a private bathroom and shower	

an impression that current practices are successful in keeping patients safe.

A chief complaint of any self-harm and, more specifically, "cutting" at presentation was more common among the inpatient-self-harm group. Similarly, Lieb et al., (2014) and Spießl et al., (Spießl, Hubner-Liebermann, & Cording, 2002) also reported that a suicide attempt before admission was a risk factor for suicide attempt during hospital stay; however, both studies looked at adult samples. Such differences in method are potentially suggestive of different functions of self-harm behaviour among the two groups (Nock

& Prinstein, 2004) which could, in part, explain why some patients continue such behaviour on the unit. Future studies are needed to compare the function of self-harm behaviour among the two groups which could help in developing prevention strategies specifically addressing underlying need.

Interestingly, the proportion of involuntary admissions in the self-harm group was almost half of that in the no-self-harm group. The decision for an involuntary admission was made by the admitting physician when patients are not willing to stay in hospital and they are considered to be at high risk to oneself or others. The lower proportion

Table 3. Comparison of presentation to hospital, in patients with and without self-harm during admission (n=351)			
	Self-harm	No Self-harm	P value
Total number of patients	50	301	
Age, Mean (SD)	15.3 (1.4)	15.1 (1.8)	p = 0.28
% of females	80	66.4	p = 0.056
Mode of transportation:			
Personal	31 (62%)	180 (60%)	
Emergency medical services	7 (14%)	68 (22.6%)	p = 0.48
Police	8 (16%)	36 (12%)	
Police and emergency medical services	4 (8%)	17 (5.6%)	
Self-harm on presentation	28 (56%)	118 (39.2%)	p = 0.025
Method			
Overdose: 12 (43%)		Overdose: 72 (61%)	p = 0.08
Cutting: 11 (39.3%)		Cutting: 22 (18.6%)	p = 0.018
> 1 method: 2 (7.14%)		> 1 method: 8 (6.7%)	p = 0.94
Lethality scale, Mean (SD)	1.44 (1.39)	1.7(1.6)	p = 0.33
Involuntary admission	9 (18%)	102 (34%)	p = 0.025

of involuntary admissions among inpatient-self-harm group could be explained as follows:

- 1) it might be due to higher willingness for admission among inpatient-self-harm group. For some adolescents, self-harm may be a means by which they communicate distress to others (Klonsky, 2007) and a means by which they enlist others to help alleviate their distress. This group may be more willing to receive intensive supports, despite maladaptive strategies to request this support. Rogers (2008) also described the reinforcing effects of the “sick role” as a possible explanation for higher inclination for admission. In some patients unintended experiences with a “sick role” may potentially reinforce excessive illness behaviours, including willingness for admission (Rogers, 2008); or
- 2) it may also imply the clinical impression at presentation was considered “low risk” by admitting physician, leading to voluntary admission status. It would be helpful for future studies to look into voluntary status and inpatient self-harm.

## Limitations

Methodological limitations of the current study include misclassification bias inherent in retrospective studies and lack of documentation in some cases that might have affected the reported self-harm rate. The chart review method

also limits further exploration of possible triggers and the suicidal intent of the act.

Multiple comparisons conducted in this study render the findings preliminary and “hypothesis-generation” rather than “hypothesis-testing”. Prospective studies would be ideal to formally test the relationships that we found.

Finally, the information available on the no-self-harm group was limited compared to data on the inpatient self-harm group. Ideally, comprehensive information would be gathered from both groups to shed more light on self-harm in youth inpatient units.

## Conclusion

This study provides a descriptive report on adolescents who engaged in self-harm behaviour during their admission to the psychiatric inpatient unit. Current self-harm prevention strategies on the unit include limiting access to means of self-harm, use of collaborative problem solving methods, and safety planning with patients and their families. Patients also receive individualized treatment (including medication, and psychotherapeutic approaches based on their diagnosis and other co-morbidities. On one hand, the existence of any self-harm behaviour despite these strategies signifies the need for refinement of current interventions and further exploration of other potential strategies. On the other hand, the low lethality scores reported by this study may suggest current strategies are efficacious in containing the sequelae. Future studies with a focus on

improving prevention methods are required, with the intent of ultimately decreasing deliberate self-harm in adolescent inpatient units.

## Acknowledgements / Conflicts of Interest

The authors have no financial relationships to disclose.

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