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RESEARCH ARTICLE

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Self-injurious thoughts and behaviours as the reason for contact to Norwegian emergency primary care centres: an observational study

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ABSTRACT

Objective: To describe and compare contacts regarding self-injurious thoughts and behaviours to other contacts to emergency primary care.
Design: Observational study.
Setting: A sentinel network of seven emergency primary care centres throughout Norway.
Subjects: Initial contacts regarding patients 10 years and older during 12 consecutive months (11/2021–10/2022).
Main outcome measures: Contacts due to self-injurious thoughts and behaviours.
Results: Self-injurious thoughts and behaviours were the reason for contact for 0.6% ($n=478$) of initial contacts for patients aged 10 years or older ($n=77\,344$). When compared to other contacts, self-injurious thoughts and behaviours were associated with female gender, younger age, occurrence during evening and nighttime, higher urgency, and more physician consultations and call-outs. Of contacts about self-injurious thoughts and behaviours, 58.2% were regarding thoughts and 41.8% about behaviours, and in 75.0% a history of similar contacts was recorded. Contacts regarding thoughts often concerned threats (30.6%) and were more often handled by telephone advice than contacts regarding behaviours. Contacts regarding behaviours with suicidal intent were associated with higher urgency and more physician call-outs than contacts regarding non-suicidal behaviours.
Conclusion: Self-injurious thoughts and behaviours are rare reasons for contact to emergency primary care but are assessed as more urgent than other contact reasons and trigger more extensive medical help. Many of the patients are known to the service through a history of similar contacts.
Implications: The infrequency and severity of these encounters might necessitate training, decision support and procedures to compensate for the health care personnel's limited exposure.

KEY POINTS

Self-injurious thoughts and behaviours are major health concerns which are associated with need for immediate medical care.

- Within Norwegian emergency primary care, self-injurious thoughts and behaviours were rare but urgent contact reasons requiring relatively extensive medical help.
- Many patients with self-injurious thoughts and behaviours had a history of similar contacts indicating the need for integral care.
- Training, decision support and procedures may be needed to compensate for limited exposure in daily work.

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Introduction

Self-injurious thoughts and behaviours are major public health concerns occurring across all ages but having a peak among the young (15–24 years). Internationally, there is an ongoing discussion about the various terminologies used for acts of intentional bodily harm against oneself (e.g. deliberate self-harm, self-injurious behaviours, self-injury, self-mutilation), as well as their overlap versus distinction towards suicidality [1,2]. In this study, we have chosen to use the term self-injurious thoughts and behaviours (SITB) which allows for

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grouping as well as differentiation of thoughts and behaviours. SITB are an important risk factor for future suicide, which according to WHO is the fourth leading cause of death worldwide for the young [3]. Globally, on average 18% of young people self-injure at least once [4]. Around half of them seek professional help including urgent and emergency care [5].

The Norwegian urgent and emergency care is two-tiered. Emergency primary care is a low-threshold service providing the largest share of urgent and emergency care and acts as gatekeepers for specialist care (i.e. hospital emergency services). Persons seeking immediate medical care are asked to contact local general practitioners during working hours (08:00–16:00) or the emergency primary care service which is available 24/7/365 and can be reached by the national telephone number 116 117 (2.6 million calls in 2023). In case of acute and life-threatening events, persons should contact the emergency medical communication centres directly by calling the emergency number 113 (0.7 million calls in 2023). The latter are part of specialist care as are the ambulance service and the hospital emergency departments. The primary and the specialist emergency services cooperate to transfer patients to the appropriate level of care.

Targeting suicide prevention, Norway has a national action plan and a guideline for specialist care [6,7]. As to primary care, almost 85% of the Norwegian suicide victims have had contact with general practitioners during the year prior to suicide [8]. Presumably, the emergency primary care plays a role as an entry point to care for persons struggling with self-injurious thoughts and behaviours. However, information about the occurrence, treatment, and quality of care regarding this patient group within the emergency primary care is lacking. Thus, we wanted to investigate contacts to a sentinel network of seven Norwegian emergency primary care services due to self-injurious thoughts and behaviours. First, we aimed to examine the frequency of self-injurious thoughts and behaviours among all initial contacts to the emergency primary care centres. Secondly, we wanted to compare patient demographics, contact characteristics, and initial assessment of the contacts regarding self-injurious thoughts and behaviours with all the other contacts to the emergency primary care centres. Thirdly, we sought to describe and compare the contacts regarding self-injurious behaviours to the contacts regarding self-injurious thoughts.

Materials and methods

This observational study was based on data collected within the Watchtower Project during 12 consecutive months to cover seasonal variation and holidays (1st November 2021–31st October 2022).

The Watchtower Project

The Watchtower Project is a sentinel network of seven emergency primary care districts (The Watchtowers) in Norway which is used to survey the activity in the emergency primary care service. Together they cover approximately 4.6% of the Norwegian population and 4.9% of the total land area [9]. Detailed description of the project can be found elsewhere [10].

Source population and study population

The Watchtowers registered a total of 94 797 contacts throughout the one-year study period. The age range in the source population was 0 to 108 years. The youngest patient with self-injurious thoughts and behaviours was 11 years.

We sought to include all contacts due to self-injurious thoughts and behaviours and make the groups of interest comparable. Previous data from the Watchtowers have shown that contacts regarding young children differ from other contacts in mode of contact and initial assessment [11]. Thus, we chose a 10 years cut-off age for the study population. Contacts regarding children beneath 10 years ($n = 16\ 513$) and contacts with missing age ($n = 940$) were excluded from the study.

Data collection and variables

All Watchtower-contacts

Initial contacts to the Watchtowers were received and assessed mainly by registered nurses by telephone (96.5%) or direct attendance at the centres (3.5%). The nurses reported anonymous information from each contact using an online database. The information included demographic data on the patient (age, gender), on the contact (time and mode of contact) and on the initial assessment (urgency, initial medical help).

- *Time of contact* was categorized as day (8 a.m. to 3.29 p.m.), evening (3.30 p.m. to 10.59 p.m.), or night (11 p.m. to 7.59 a.m.) corresponding to the work shifts for the nurses.

- *Mode of contact* was categorized according to who initiated the contact, that is the patient himself (including phone and direct attendance), next of kin, the emergency medical communication centre (emergency number 113), other health professionals, or others (e.g. police, social service, friends, passersby).
- *Urgency* was categorized as non-urgent, urgent, or acute in accordance with the Norwegian Index for Medical Emergency Assistance [12].
- *Initial medical help* was categorized as nurse – advice (including telephone advice and consultation), physician – telephone advice, physician – consultation, physician call-out (including call-outs and home visits), COVID-19-testing, or other actions (ambulance call-out, referral to general practitioner, police, and social services).

Contacts regarding self-injurious thoughts and behaviours

The nurses registered supplementary information for contacts which they considered dealt with self-injurious thoughts and behaviours. They distinguished between contacts regarding behaviours and contacts regarding thoughts only.

Contacts regarding *self-injurious behaviours* included any self-injurious act conducted by the patient, regardless of the intent. For the behaviours, the nurses registered suicidal intent, method, and history of similar contacts.

- *Suicidal intent* was categorized as non-suicidal self-harm (non-suicidal), suicidal attempt (suicidal), completed suicide, or unclear/vague suicidal intent (unclear).
- *Method* was categorized as self-injury (including cutting, burning, punching, manipulating existing wounds, and swallowing objects), self-poisoning (including intake of medicines, illicit drugs, and other substances), jumping from a height, hanging or asphyxiation, multiple methods, or unknown.
- *History* of *similar contacts* was categorized as no self-injurious thoughts and behaviours (SITB), non-suicidal SITB, suicidal SITB, or non-suicidal **and** suicidal SITB, or unknown.

Contacts regarding *self-injurious thoughts* included any idea of engaging in self-injurious behaviours without an act performed, regardless of the intent. For the thoughts, the nurses registered types of thoughts and history of similar contacts (as described above).

- *Type of thoughts* was categorized as thoughts (referring to unspecified thoughts about self-injurious behaviour), plans (referring to concrete considerations to engage in self-injurious behaviour, like method, time, and preparations), threats (referring to announced intention to engage in self-injurious behaviour to achieve something e.g. a hospital admission, avoid being left), or unknown type of thoughts.

Before starting the data collection, educational workshops and posters ensured the nurses' competence concerning self-injurious thoughts and behaviours.

Ethical approval

The Watchtower project has been approved by the Regional Committee for Medical and Health Research Ethics (ref. 2012/1094), the Norwegian Social Science Data Services (ref. 31590) and by the privacy ombudsman for research for NORCE Norwegian Research Centre AS (NORCE). The project collects anonymous data, and patient consent is not needed.

Statistics

The variable distribution by contacts have been described by use of frequencies, percentages, and 95% confidence intervals (CI) for proportions. Missing values were excluded from the analyses. Due to skewed age distribution, median and the interquartile range (IQR) were used to describe the sample. Age distributions were compared by Kolmogorov–Smirnov tests and Wilcoxon rank-sum (Mann–Whitney) tests. The groups were compared by Pearson's Chi-Square tests or Fisher's exact tests, when appropriate. Statistical significance was set at p-values < 0.05, and Stata/SE 18.0 was used for the statistical analysis.

Results

During the one-year study period, 77 344 contacts to the emergency primary care centres involved patients aged 10 years or older. Of these, 0.6% ($n = 478$) had self-injurious thoughts and behaviours as the reported reason for contact. Three out of four contacts regarding self-injurious thoughts and behaviours (75.0%) were logged with a history of similar contacts and more than a third (35.6%) had a history of both suicidal and non-suicidal self-injurious thoughts and behaviours.

Self-injurious thoughts and behaviours versus other contacts

Contacts regarding self-injurious thoughts and behaviours differed significantly from the other emergency primary care contacts in all variables (Figure 1(a), Table 1). Patients reporting self-injurious thoughts and behaviours were younger (median age 27 years, IQR [18;42]) than the other patients (median age 41 years, IQR [24;63]) ($p < 0.001$) and were more often females (70.7% vs. 55.5%, respectively, $p < 0.001$).

Contacts regarding self-injurious thoughts and behaviours occurred more often during the night than other contacts (34.7% vs. 13.1%, respectively, $p < 0.001$) and were more frequently relayed from the emergency number 113 (26.0% vs. 6.9%, respectively, $p < 0.001$). Also, contacts about self-injurious thoughts and behaviours were more often assessed as urgent (69.7% vs. 31.2% respectively) and acute (19.9% vs. 9.2%) as compared to the other contacts ($p < 0.001$). Finally, contacts regarding self-injurious thoughts and behaviours resulted in more physician consultations (57.6% vs. 40.3% respectively) and call-outs (9.9% vs. 4.5%, respectively) than the other contacts ($p < 0.001$).

Self-injurious thoughts versus self-injurious behaviours

Among all 478 contacts regarding self-injurious thoughts and behaviours, 58.2% were related to thoughts and 41.8% to behaviours (Table 2).

Patients reporting self-injurious behaviours were younger (median age 22 years, IQR [18;31]) than those reporting self-injurious thoughts (33 years, IQR [21;47]) ($p < 0.001$) (Figure 1(b)) and had a higher female rate (80.9% vs. 63.5%, $p < 0.001$).

Contacts regarding self-injurious behaviours resulted in more consultations (67.5%) compared to contacts regarding self-injurious thoughts (50.5%) ($p < 0.001$). Behaviours were associated with the history of non-suicidal self-injurious thoughts and behaviours (30.8% vs. 4.7% of contacts about thoughts, $p < 0.001$) (Table 2). Contacts regarding self-injurious thoughts were associated with the history of suicidal self-injurious thoughts and behaviours (32.9 vs. 10.6% of contacts about behaviours, $p < 0.001$).

Self-injurious behaviours by intent

Of all contacts regarding self-injurious behaviours, 43.5% were recorded as non-suicidal, 24% as suicidal, and in

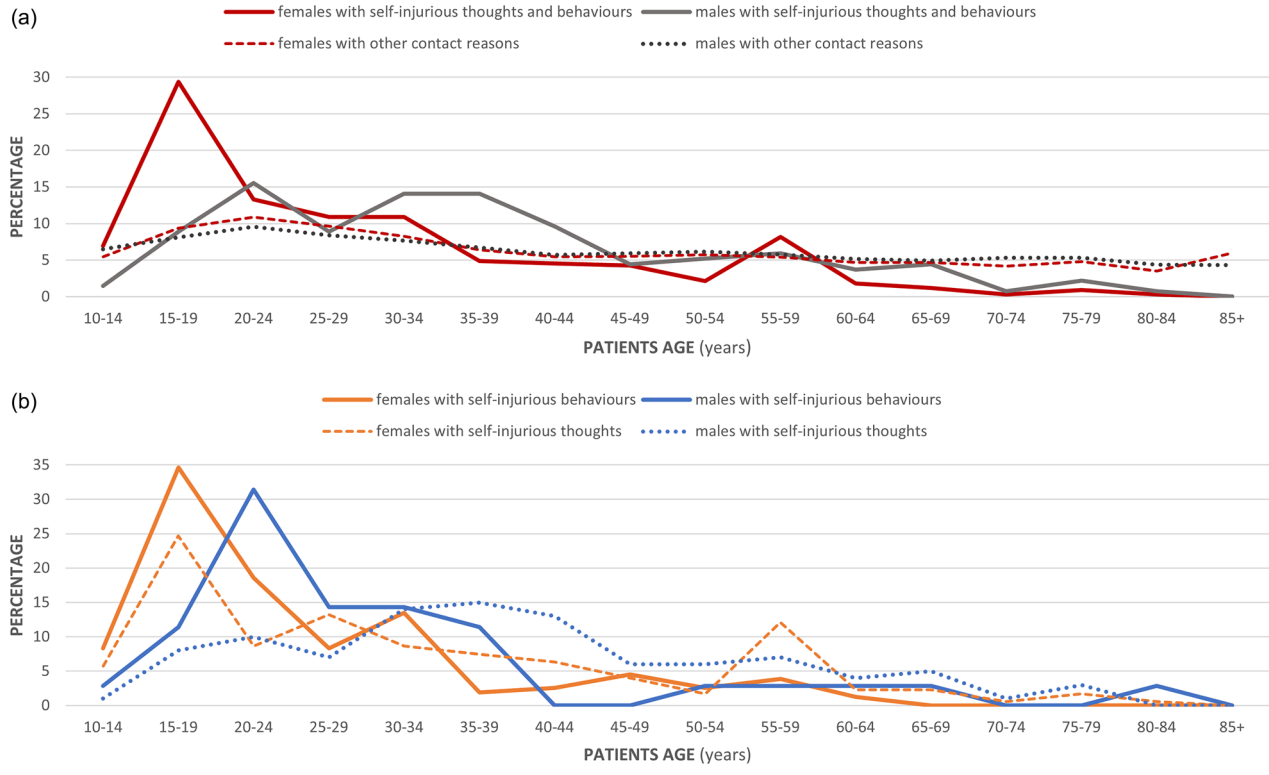

Figure 1. Age distribution by gender of patients aged ≥ 10 years contacting Norwegian emergency primary care centres. (a) Contacts regarding self-injurious thoughts and behaviours ($n = 465$; 10*) versus other contact reasons ($n = 76\,278$; 1 588*). (b) Contacts regarding self-injurious thoughts ($n = 274$; 4*) versus self-injurious behaviours (n = 191; 9*).
*Contacts with missing age and gender are excluded.

Table 1. Contact characteristics and the initial assessment of emergency primary care contacts regarding self-injurious thoughts and behaviours versus other emergency primary care contacts for patients aged ≥ 10 years.

	ALL INCLUDED EMERGENCY PRIMARY CARE CONTACTS N = 77 344						
	SELF-INJURIOUS THOUGHTS AND BEHAVIOURS CONTACTS N = 478			OTHER CONTACTS N = 76 866			
	n	%	95% CI	*n*	%	95% CI	*P*-value
TIME OF CONTACT							**<0.001**
Day	94	**19.7**	**16.2–23.5**	36 737	**47.8**	**47.4–48.1**	
Evening	218	**45.6**	**41.1–50.2**	30 094	**39.1**	**38.8–39.5**	
Night	166	**34.7**	**30.5–39.2**	10 035	**13.1**	**12.8–13.3**	
MODE OF CONTACT							**<0.001**
Patient himself	180	**38.4**	**34.0–42.9**	45 766	**60.0**	**59.6–60.3**	
Next of kin	82	17.5	14.2–21.2	15 241	20.0	19.7–20.3	
Emergency number 113	122	**26.0**	**22.1–30.2**	5 299	**6.9**	**6.8–7.1**	
Other health professionals	53	11.3	8.6–14.5	7 831	10.3	10.0–10.5	
Others	32	**6.8**	**4.7–9.5**	2 176	**2.8**	**2.7–3.0**	
Missing[a]	(9)			(553)			
URGENCY							**<0.001**
Non-urgent	48	**10.4**	**7.8–13.5**	44 454	**59.6**	**59.3–60.0**	
Urgent	322	**69.7**	**65.3–73.9**	23 252	**31.2**	**30.8–31.5**	
Acute	92	**19.9**	**16.4–23.9**	6 875	**9.2**	**9.0–9.4**	
Missing[a]	(16)			(2 285)			
INITIAL MEDICAL HELP							**<0.001**
Nurse – advice	70	**14.8**	**11.7–18.3**	22 883	**30.0**	**29.7–30.3**	
Physician – telephone advice	52	11.0	8.3–14.1	6 294	8.3	8.1–8.4	
Physician – consultation	273	**57.6**	**53.0–62.1**	30 768	**40.3**	**40.0–40.7**	
Physician – call-out	47	**9.9**	**7.4–13.0**	3 397	**4.5**	**4.3–4.6**	
COVID-19 testing	0			7 798	10.2	10.0–10.4	
Other actions[b]	32	6.7	4.7–9.4	5 132	6.7	6.6–6.9	
Missing[a]	(4)			(594)			

[a]Missing data are excluded from the analyses.
[b]Referral to regular General Practitioner, police etc.

31% of contacts the suicidal intent was unclear (Table 3). The remaining 1.5% ($n = 3$) were recorded as completed suicides. The patients who died by suicide were men, in the age range 21–80 years, and all had a history of self-injurious thoughts and behaviours. The suicide cases were excluded from further analyses of contacts regarding self-injurious behaviours.

The age distribution was similar for patients reporting self-injurious behaviours with non-suicidal, suicidal, and unclear intent (data not shown). Non-suicidal self-injurious behaviours and self-injurious behaviours with unclear intent were more often conducted by females (89.4% and 86.7%, respectively) compared to the suicidal self-injurious behaviours (63.0%) ($p < 0.001$).

Self-injurious behaviours with suicidal intent were associated with more acute contacts (45.8%), more physician call-outs (26.1%) and more self-poisoning (43.6%) compared to non-suicidal and unclear intent (Table 3). Conversely, the behaviours with non-suicidal intent were associated with self-injury (79.7%) and the history of non-suicidal self-injurious thoughts and behaviours (48.3%).

Self-injurious thoughts by type

Within contacts regarding self-injurious thoughts, the threats of self-injurious behaviour were the largest group (30.6%), followed by thoughts (26.3%) and plans (24.8%) (Table 4). The remaining 18.3% ($n = 51$) were recorded as unknown type and were excluded from further analyses comparing different types of thoughts.

We found no significant differences in age distribution and gender distribution between contacts regarding thoughts, threats, and concrete plans of self-injurious behaviour (data not shown).

Contacts regarding thoughts about self-injurious behaviour were more often made by patients themselves (58.3%) compared to contacts regarding plans (30.9%) ($p = 0.030$). Contacts regarding plans were more often assessed as acute (32.8%) than contacts regarding thoughts (5.5%) ($p < 0.001$). Notably, 98.5% of contacts regarding plans were assessed as urgent or acute, and of these 13% resulted in nurse advice only.

Discussion

Statement of principal findings

Self-injurious thoughts and behaviours were the reason for less than one in hundred of all initial emergency primary care contacts. They were often associated with a history of similar contacts. Contacts regarding self-injurious thoughts and behaviours differed significantly from other emergency primary care

Table 2. Contact characteristics and the initial assessment of emergency primary care contacts regarding self-injurious behaviours versus self-injurious thoughts.

	EMERGENCY PRIMARY CARE CONTACTS REGARDING SELF-INJURIOUS THOUGHTS AND BEHAVIOURS (SITB) $N=478$						
	BEHAVIOURS $N=200$			THOUGHTS $N=278$			
	n	%	95% CI	n	%	95% CI	P-value
TIME OF CONTACT							0.174
Day	32	16.0	11.2–21.8	62	22.3	17.5–27.7	
Evening	99	49.5	42.4–56.6	119	42.8	36.9–48.9	
Night	69	34.5	27.9–41.5	97	34.9	29.3–40.8	
MODE OF CONTACT							0.495
Patient himself	66	33.5	27.0–40.6	114	41.9	36.0–48.0	
Next of kin	40	20.3	14.1–26.6	42	15.4	11.4–20.3	
Emergency number 113	53	26.9	20.8–33.7	69	25.4	20.3–31.0	
Other health professionals	25	12.7	8.4–18.2	28	10.3	7.0–14.5	
Others	13	6.6	3.6–11.0	19	7.0	4.3–10.7	
Missing[a]	(3)			(6)			
URGENCY							0.078
Non-urgent	19	9.8	6.0–14.9	29	10.8	7.3–15.1	
Urgent	126	65.3	58.1–72.0	196	72.9	67.1–78.1	
Acute	48	24.9	18.9–31.6	44	16.3	12.1–21.3	
Missing[a]	(7)			(9)			
INITIAL MEDICAL HELP							**<0.001**
Nurse – advice	12	**6.1**	**3.2–10.4**	58	**20.9**	**16.3–26.2**	
Physician – telephone advice	10	**5.1**	**2.5–9.1**	42	**15.2**	**11.2–19.9**	
Physician – consultation	133	**67.5**	**60.5–74.0**	140	**50.5**	**44.5–56.6**	
Physician – call-out	27	13.7	9.2–19.3	20	7.3	4.5–10.9	
Other actions[b]	15	7.6	4.3–12.2	17	6.1	3.6–9.6	
Missing[a]	(3)			(1)			
HISTORY OF SIMILAR CONTACTS							**<0.001**
No SITB	26	13.1	8.8–18.6	45	16.4	12.2–21.4	
Non-suicidal SITB	61	**30.8**	**24.5–37.7**	13	**4.7**	**2.6–8.0**	
Suicidal SITB	21	**10.6**	**6.7–15.8**	90	**32.9**	**27.3–38.8**	
Non-suicidal **and** suicidal SITB	70	35.4	28.7–42.4	98	35.8	30.1–41.8	
Unknown	20	10.1	6.3–15.2	28	10.2	6.9–14.4	
Missing[a]	(2)			(4)			

[a]Missing data are excluded from the analyses.
[b]Referral to regular General Practitioner, police etc.

contacts regarding patient demographics, contact characteristics and the initial assessment. Self-injurious thoughts, with threats as the dominating type, were a more frequent contact reason than self-injurious behaviours. Despite of similar urgency assessment, contacts regarding self-injurious thoughts were more often handled by telephone advice than contacts regarding self-injurious behaviours. Contacts regarding suicidal self-injurious behaviours were assessed as more urgent and resulted in more physician call-outs than contacts regarding non-suicidal self-injurious behaviours.

Strengths and weaknesses of the study

This study had a high number of included contacts ($N=77\,344$) from a sentinel network of emergency primary care centres throughout Norway (the Watchtowers). The overall data quality during the study period was good, showing few incomplete recordings (2021: 3.6%; 2022: 5.5%) [9,13]. The proportion of missing data was below 5% for all variables, except the method of self-injurious behaviours which had 18.3% missing.

The present study was conducted in the later phase of the COVID-19 pandemic and 10.2% ($n=7789$) of contacts by the study population were related to testing for COVID-19. The pandemic evidently raised the activity and workload at the Watchtowers [14] and the underreporting of contacts (estimated to 35 – 39% in 2022) [13]. There is no reason to believe that the underreporting affected contacts regarding self-injurious thoughts and behaviours more than other contacts. However, the documented increased total number of contacts has contributed to a relatively reduced fraction of self-injurious thoughts and behaviours in our study.

The entity of this study was contacts to the service, and there was no registration of identifiers of unique persons. We are therefore unable to tell how potential frequent users might have affected the findings by for example shaping the age distribution or magnifying the urgency assessment due to poor health [15]. As the purpose of this study was to describe contacts to

Table 3. Contact characteristics and the initial assessment of emergency primary care contacts regarding self-injurious behaviours by suicidal intent.

	EMERGENCY PRIMARY CARE CONTACTS REGARDING SELF-INJURIOUS BEHAVIOURS N = 197[a]									
	NON-SUICIDAL INTENT N = 87			SUICIDAL INTENT N = 48			UNCLEAR INTENT N = 62			
	n	%	95% CI	*n*	%	95% CI	*n*	%	95% CI	*P*-value
TIME OF CONTACT										0.813
Day	12	13.8	7.3–22.9	9	18.8	8.9–32.6	10	16.1	8.0–27.7	
Evening	47	54.0	43.0–64.8	23	47.9	33.3–63.8	28	45.2	32.5–58.3	
Night	28	32.2	22.6–43.1	16	33.3	20.4–48.4	24	38.7	26.6–51.9	
MODE OF CONTACT										0.152*
Patient himself	36	41.4	30.9–52.4	13	27.1	15.3–41.8	17	28.8	17.8–42.1	
Next of kin	17	19.5	11.8–29.4	7	14.6	6.1–27.8	16	27.1	16.4–40.3	
Emergency number 113	15	17.2	10.0–26.8	16	33.3	20.4–48.4	19	32.2	20.6–45.6	
Other health professionals	14	16.1	9.1–25.5	7	14.6	6.1–27.8	4	6.8	1.9–16.5	
Others	5	5.8	1.9–12.9	5	10.4	3.5–22.7	3	5.1	1.1–14.1	
Missing[b]	(0)			(0)			(3)			
URGENCY										**<0.001**
Non-urgent	13	15.8	8.7–25.6	2	4.2	5.1–14.3	3	5.0	1.0–13.9	
Urgent	61	74.4	63.6–83.4	24	50.0	35.2–64.8	41	68.3	55.0–79.7	
Acute	8	**9.8**	**4.3–18.3**	22	**45.8**	**31.4–60.8**	16	26.7	16.1–39.7	
Missing[b]	(5)			(0)			(2)			
INITIAL MEDICAL HELP										**0.007***
Nurse – advice	6	7.0	2.6–14.6	2	4.3	0.5–14.8	4	6.5	1.8–15.7	
Physician – telephone advice	5	5.8	1.9–13.0	1	2.2	0.06–11.5	3	4.8	1.0–13.5	
Physician – consultation	68	79.1	69.0–87.1	28	60.9	45.4–74.9	37	59.7	46.4–71.9	
Physician – call-out	4	**4.6**	**1.3–11.5**	12	**26.1**	**14.3–41.1**	9	14.5	6.9–25.8	
Other actions[c]	3	3.5	0.7–9.9	3	6.5	1.4–17.9	9	14.5	6.9–25.8	
Missing[b]	(1)			(2)			(0)			
HISTORY OF SIMILAR CONTACTS										**<0.001***
No self-injurious thoughts and behaviour (SITB)	9	10.3	4.8–18.7	13	27.7	15.6–42.6	4	6.5	1.8–15.9	
Non-suicidal SITB	42	**48.3**	**37.4–59.2**	4	**8.5**	**2.4–20.4**	15	24.6	14.5–37.3	
Suicidal SITB	4	4.6	1.3–11.4	8	17.0	7.6–30.8	7	11.5	4.7–22.2	
Non-suicidal **and** suicidal SITB	29	33.3	23.6–44.3	18	38.3	24.5–53.6	22	36.1	24.2–49.4	
Unknown	**3**	**3.5**	**0.7–9.7**	4	8.5	2.4–20.4	**13**	**21.3**	**11.9–33.7**	
Missing[b]	(0)			(1)			(1)			
METHOD										**<0.001***
Self-injury	59	**79.7**	**68.8–88.2**	9	**23.1**	**11.1–39.3**	29	**60.4**	**45.3–74.2**	
Self-poisoning	10	**13.5**	**6.7–9.4**	17	**43.6**	**27.8–60.4**	10	20.8	10.5–35.0	
Jump from a height	1	1.4	0.03–7.3	1	2.5	0.06–13.5	0			
Hanging/ asphyxiation	0			4	10.3	2.9–24.2	2	4.2	0.5–14.3	
Multiple methods	2	2.7	0.3–9.4	6	15.4	5.8–30.5	3	6.3	1.3–17.2	
Unknown	2	2.7	0.3–9.4	2	5.1	0.6–17.3	4	8.3	2.3–20.0	
Missing[b]	(13)			(9)			(14)			

[a] Completed suicides ($n = 3$) are excluded from the analyses.
[b]Missing data are excluded from the analyses.
[c]Referral to regular General Practitioner, police etc.
*Fisher's exact test.

the service and not the individual service use, the impact of individual users has less relevance, although such information would have further increased the value of the study. Also, due to the focus on initial contacts, the current study cannot say anything about outcomes or quality of care given to patients with self-injurious thoughts and behaviours.

Findings in relation to other studies

Self-injurious thoughts and behaviours occurred in less than one per cent (0.6%) of contacts to emergency primary care. Within this service they were considered as rare if compared to the most frequent reasons for encounter such as respiratory (12.3%) or digestive (10%) conditions [16]. In international context, our result is in line with reported proportion of presentations to emergency departments of 0.4%–1.4% contacts regarding self-injurious thoughts and behaviours [17–19]. Still, we presume that some cases remained unidentified throughout the initial contact, so that the actual occurrence might be higher than 0.6%. This mechanism of underreporting is also described by other authors [20,21]. Considering sociodemographic factors, Norway is a high-income and well-developed

Table 4. Contact characteristics and the initial assessment of emergency primary care contacts regarding self-injurious thoughts by type of thoughts.

	EMERGENCY PRIMARY CARE CONTACTS REGARDING SELF-INJURIOUS THOUGHTS N = 227[a]									
	THOUGHTS *N* = 73			THREATS *N* = 85			PLANS *N* = 69			
	n	%	95% CI	*n*	%	95% CI	*n*	%	95% CI	*P*-value
TIME OF CONTACT										0.108
Day	13	17.8	9.8–28.5	21	24.7	16.0–35.3	17	24.6	15.1–36.5	
Evening	38	52.1	40.0–63.9	40	47.1	36.1–58.2	22	31.9	21.2–44.2	
Night	22	30.1	19.9–42.0	24	28.2	19.0–39.0	30	43.5	31.6–56.0	
MODE OF CONTACT										**0.024***
Patient himself	42	**58.3**	**46.1–69.8**	32	38.6	28.1–49.9	21	**30.9**	**20.2–43.3**	
Next of kin	11	15.3	7.9–25.7	14	16.9	9.5–26.7	6	8.8	3.3–18.2	
Emergency number 113	13	18.1	10.0–28.9	25	30.1	20.5–41.2	24	35.3	24.1–47.8	
Other health professionals	4	5.5	1.5–13.6	8	9.6	4.3–18.1	11	16.2	8.4–27.1	
Others	2	2.8	1.9–9.7	4	4.8	1.3–11.9	6	8.8	3.3–18.2	
Missing[b]	(1)			(2)			(1)			
URGENCY										**<0.001**
Non-urgent	7	**9.6**	**3.9–18.8**	13	**15.7**	**8.6–25.3**	1	**1.5**	**0.04–8.0**	
Urgent	62	84.9	74.6–92.2	57	68.6	57.6–78.4	44	65.7	53.1–76.8	
Acute	4	**5.5**	**1.5–13.4**	13	**15.7**	**8.6–25.3**	22	**32.8**	**21.8–45.4**	
Missing[b]	(0)			(2)			(2)			
INITIAL MEDICAL HELP										**0.002***
Nurse – advice	17	23.3	14.2–34.6	23	27.1	18.0–37.8	9	13.0	6.1–23.3	
Physician – telephone advice	6	8.2	3.1–17.0	15	17.6	10.2–27.4	9	13.0	6.1–23.3	
Physician – consultation	48	**65.7**	**53.7–76.5**	35	**41.2**	**30.6–52.4**	33	48.0	35.6–60.2	
Physician – call-out	1	1.4	0.03–7.4	8	9.4	4.2–17.7	9	13.0	6.1–23.3	
Other actions[c]	1	1.4	0.03–7.4	4	4.7	1.3–11.6	9	13.0	6.1–23.3	
HISTORY OF SIMILAR CONTACTS										0.160*
No self-injurious thoughts and behaviour (SITB)	9	12.3	5.8–22.1	15	18.1	10.5–28.0	12	17.7	9.5–28.8	
Non-suicidal SITB	6	8.2	3.1–17.0	3	3.6	0.8–10.2	2	2.9	0.4–10.2	
Suicidal SITB	32	43.8	32.2–55.9	22	26.5	17.4–37.3	19	27.9	17.7–40.1	
Non-suicidal **and** suicidal SITB	21	28.8	18.8–40.6	39	47.0	35.9–58.3	29	42.7	30.7–55.2	
Unknown	5	6.9	2.3–15.3	4	4.8	1.3–11.9	6	8.8	3.3–18.2	
Missing[b]	(0)			(2)			(1)			

[a]Contacts regarding unknown type of thoughts ($n = 51$) are excluded from the analyses.
[b]Missing data are excluded from the analyses.
[c]Referral to regular General Practitioner, police etc.
*Fisher's exact test.

country with relatively high occurrence of mental health conditions, but nevertheless assumed to have lower burden of self-harm compared to countries with lower income and poorer sociodemographic development [22]. Partially, this might be due to accessible and affordable mental health services in Norway. The later aspect combined with the fact that the most acute self-injuries are handled by specialist care only, may also have contributed to the relatively low occurrence.

In our sample, three out of four contacts regarding self-injurious thoughts and behaviours were associated with the history of similar contacts. This finding is in line with other research stating high extent of repetition among self-injuring patients [23,24].

To our knowledge, most other studies investigating self-injurious thoughts and behaviours have been performed on this group in separation, without comparison to other patient groups utilising the same health care service. The few existing comparative studies support our results on the association of self-injurious thoughts and behaviours with female gender, younger age, occurrence during evening and nighttime, higher degree of urgency, and more extensive medical help, when compared to other contacts [17,25,26].

Contrary to other clinical studies [24,26,27], we found a higher rate of contacts regarding self-injurious thoughts (58.2%) than regarding self-injurious behaviours (41.8%). Cross-national community data clearly show a higher occurrence of self-injurious

thoughts versus behaviours, both in the short and the long term [28,29]. The low-threshold character of Norwegian emergency primary care service may have contributed to our result being more similar to what is reported in the community, as the population seen in this service reflects the community population more precisely than emergency department populations.

Despite similar urgency assessment, contacts regarding self-injurious thoughts were more frequently handled by telephone advice by a nurse or a physician, than contacts regarding self-injurious behaviours. This difference may be due to the need for physical examination or treatment associated with actual behaviours.

A third of contacts regarding self-injurious thoughts were regarding threats to engage in self-injurious behaviour. Hence, threats constituted approximately 18% of all the contacts about self-injurious thoughts and behaviours. This is consistent with research reporting a prevalence of 9.4–18.0% of suicide threats or gestures in clinical youth populations [30,31]. We have been unable to find relevant literature about threats presented to emergency services. Our result therefore emphasizes the need for more knowledge about this topic.

As to self-injurious behaviours, we found that suicidal intention was associated with higher urgency estimate and larger proportion of physician call-outs compared to the non-suicidal cases. This finding might reflect that non-suicidal self-injurious behaviours result in less severe physical damage compared to suicidal self-injurious behaviours [32].

Conclusions and implications

In an unselected emergency primary care population, self-injurious thoughts and behaviours account for a small part of all initial contacts but are assessed as more urgent and in need of more extensive medical help than other contact reasons. Low occurrence implies a limited exposure and experience among the staff. Yet, the potential urgency of these contacts calls for the health personnel to know how to handle these incidents. This finding emphasizes the importance of provision of relevant decision support tools and guidelines tailored for primary care by health authorities. Locally, clear procedures as well targeted training and supervision should be considered to ensure good clinical practice.

Moreover, many persons presenting with self-injurious thoughts were advised by telephone, which can be an important contribution to reduce the workload on the rest of urgent and emergency care.

The frequency of threats to self-injure suggests that this is a significant clinical topic which should be addressed by future research.

Finally, the evidence for repeated contacts regarding self-injurious thoughts and behaviours indicates enduring or complex complaints calling for integral care and the need to establish local cooperations across primary and specialist care to avoid the revolving door effect.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

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Data availability statement

Data are available upon reasonable request. The data sets generated and/or analysed during the current study are not publicly available because the approvals from the ethics committee and the privacy ombudsman for research do not permit disclosure of raw data, but the data are available upon a reasonable request to corresponding author.

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