



# Help-seeking duration in adolescents with suicidal behavior and non-suicidal self-injury

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## ABSTRACT

Prompt access to appropriate professional care for adolescents with self-harm thoughts and respective behaviors (suicidal behavior and non-suicidal self-injury [NSSI]) is crucial as both are associated with an increased risk of suicide in later life. The present study aimed to describe the duration from initial onset of thoughts and incidents of self-harm until first clinical presentation in children and adolescents and to identify factors affecting help-seeking duration.

Onset of self-harm thoughts and behaviors, time of first clinical presentation, and psychiatric and demographic variables were obtained from  $n = 672$  adolescents (11–19 years) from the Germany-based AtRISK (*Ambulanz für Risikoverhalten & Selbstschädigung*) cohort-study at an outpatient clinic for risk-taking and self-harm behaviors. In 22% of overall cases, the first self-harm thoughts and behaviors occurred after contact to professional care was already established. Focusing on actual help-seeking delay only, it took between  $M = 0.99$  years (after first suicide attempt) and  $M = 1.98$  years (after first thoughts of NSSI) until participants sought professional help. Overall, help-seeking duration and help-seeking delay were longer for participants with more severe psychopathology (i.e., BPD, depressive symptoms, general symptom severity). The findings revealed a substantial delay of receiving appropriate professional care in adolescents with self-harm thoughts and behavior. The correlation between treatment latency and higher psychopathology may emphasize the need of prompt treatment. A better understanding of barriers and facilitators to professional help will contribute to enhance measures of tailored support for young patients in their help-seeking process.

## 1. Introduction

Self-harm, which includes both suicidal behavior and non-suicidal self-injury (NSSI), is common among adolescents. Moreover, suicide is known to be among the leading causes of death for adolescents in Europe (Steele and Doey, 2007). A systematic review of international literature found that 29.9% of adolescents thought about suicide, and 9.7% attempted suicide at some point in their lives (Evans et al., 2005). Lifetime prevalence of NSSI (i.e. the deliberate act of injuring one's own body tissue without suicidal intent) in adolescents has been estimated at 17% (Muehlenkamp et al., 2012). In cross-sectional and longitudinal studies, NSSI was associated with increased suicidality (Andover and Gibb, 2010; Groschwitz et al., 2015; Koenig et al., 2017), and self-harm

regardless of suicidal intent (including both NSSI and suicide attempts) increased the risk for later suicide in life (Morgan et al., 2017). Therefore, easy and prompt access to appropriate professional care seems crucial for young individuals with suicidal behavior and NSSI, especially as there are various effective treatment options available for young people experiencing these symptoms. For example, DBT-A and family-centered therapy have been successfully implemented to reduce suicidal ideation and self-harm in adolescents ( $d = 0.48 - 0.58$ ; Kothgassner et al., 2021, 2020).

Despite the clear need for early intervention in adolescents engaging in self-harm, only a low proportion of affected adolescents seek professional help. Utilization of professional care is low for mental health problems overall, with only 25% of affected adolescents receiving

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professional treatment (Sanci et al., 2010). The proportion of those receiving professional help for NSSI and suicidality in particular has been estimated between 10 and 50%, depending on factors such as age, sex, and country (Bruffaerts et al., 2011; Cotter et al., 2015; Evans et al., 2005; Kaess et al., 2020; Ystgaard et al., 2009). Alongside low utilization rates of professional health care, an additional burden for effective treatment is the common delay in seeking help. For adults that eventually sought help for mental health problems, it took between 7 and 11 years from first symptom onset until treatment (Olsson et al., 1998; Wang et al., 2004, 2007). Aside from these overall estimates on help-seeking duration for adults, there is sparse evidence on patterns and correlates of the delay in initial contact to the mental healthcare system, especially in adolescents. This lack of research on help-seeking duration is in contrast to the extensive literature that exists on general help-seeking thoughts and behaviors in adolescents (Rowe et al., 2014). Some studies addressed the help-seeking duration in young patients with psychosis, but this was complicated by the rather gradual onset of first symptoms (Bechard-Evans et al., 2007; Dominguez et al., 2013). To our knowledge, help-seeking duration has not been analyzed for adolescents with NSSI and/or suicidal behavior in particular.

Accordingly, little is known about the factors that may influence the help-seeking duration in adolescents. In prior studies on adults, a shorter help-seeking delay was found for females compared to males (Kessler, 1986; ten Have et al., 2013). This pattern is in line with a higher overall mental healthcare utilization in women, often attributed to a higher willingness to seek help for emotional problems when compared to men (Kessler et al., 1981; Mackenzie et al., 2012). Further, there are indications that initial help-seeking is faster for individuals who have more severe mental health issues compared to patients with lower psychological distress (Leaf et al., 1988; Wang et al., 2000). This may be explained by a higher problem recognition in these individuals, associated with a greater perceived need for care (Thompson et al., 2004). Different disorders have been associated with a varying duration from first symptom onset until treatment utilization. The longest delay has been found in help-seeking for anxiety disorders, whereas initial contact was fastest for mood disorders (Wang et al., 2007). So far, help-seeking duration in personality disorders has not yet been examined. However, as individuals with borderline personality disorder (BPD) utilize mental healthcare more often compared to other psychiatric patients (Bender et al., 2001), and predictors of treatment contact and treatment delay were often similar (ten Have et al., 2013), a shorter help-seeking duration for BPD patients could be assumed.

Many psychiatric disorders have their onset in adolescence (Kim-Cohen et al., 2003), and both NSSI and suicidal behavior can be considered as a transdiagnostic marker of mental disorders and suicide risk in this age group (Bridge et al., 2006; Ghinea et al., 2020). Since delayed treatment of mental illness has been associated with increased symptom severity and lethality (Melle et al., 2008; Nery-Fernandes et al., 2012), the prompt treatment of self-harming adolescents and its associated disorders seems of particular importance. A precise description of help-seeking duration for self-harm thoughts and behaviors in adolescents as well as the analysis of potential influential factors may contribute to a better understanding of barriers to help-seeking and can help to ultimately improve mental healthcare provision. Thus, the aim of the present study was to describe the duration from initial onset of thoughts or incidents of self-harm (NSSI and suicidal behavior) until first clinical presentation in adolescents and to evaluate effects of sex and psychiatric factors on help-seeking duration.

## 2. Methods

### 2.1. Participants and procedure

Baseline data were obtained from the AtR!Sk cohort-study at the outpatient clinic for risk-taking and self-harm behaviors (AtR!Sk; Ambulanz für Risikoverhalten & Selbstschädigung; Kaess et al., 2017),

conducted at the Clinic for Child and Adolescent Psychiatry, Centre of Psychosocial Medicine, University Hospital Heidelberg. AtR!Sk is a specialized outpatient clinic for children and adolescents with self-harm and risk-taking behavior. The AtR!Sk cohort study was approved by the Ethical Committee of the Medical Faculty, Heidelberg University, Germany (Study: ID S-449/2013) and carried out in accordance with the declaration of Helsinki (World Medical Association, 2013). All participants and their legal guardians provided written informed consent. Following first consultation, patients underwent an extensive diagnostic assessment, including semi-structured interviews and questionnaires as detailed below. Experienced clinicians held these interviews with regard to the patient's personal timeline and specific life events, and patient's caregivers were involved, enabling a reliable data assessment. Individuals who reported risk-taking (e.g. substance abuse, binge drinking, sexual risk-taking) or self-harm (NSSI or suicide attempts) behaviors were included in the scientific evaluation of AtR!Sk. From June 2013 until January 2021,  $N = 672$  individuals (82% female) aged 11 to 19 ( $M = 15.02$ ,  $SD = 1.46$ ) met these criteria and provided written informed consent. 95% of participants fulfilled criteria for at least one psychiatric diagnosis, with affective disorders (63%), BPD (32%), and anxiety disorders (30%) being most frequent. For more information on sample characteristics, see Table 1.

### 2.2. Measures

Alongside basic sociodemographic and clinical variables, patients

**Table 1**  
Sociodemographic and clinical characteristics of the sample ( $N = 672$ ).

	N/M	%/SD
<b>Female sex (N/%)</b>	555	82.59
<b>Age (M/SD)</b>	15.02	1.46
<b>School type<sup>a</sup> (N/%)</b>		
Gymnasium	234	34.98
Realschule	232	34.68
Hauptschule	74	11.06
Other	90	13.39
<b>Household composition (N/%)</b>		
With biological mother	534	81.78
With other mother figure	34	5.21
With no mother figure	85	13.02
With biological father	321	52.45
With other father figure	101	16.50
With no father figure	190	31.05
Residential youth service	57	8.48
<b>Experience of abuse or neglect in childhood<sup>b</sup> (N/%)</b>	397	65.51
<b>Clinical diagnoses ICD-10<sup>c</sup> (N/%)</b>		
F0 (Organic, including symptomatic, mental disorders)	0	0.00
F1 (Mental and behavioural disorders due to psychoactive substance use)	149	22.11
F2 (Schizophrenia, schizotypal and delusional disorders)	0	0.00
F3 (Mood [affective] disorders)	426	63.20
F4 (Neurotic, stress-related and somatoform disorders)	264	39.17
F5 (Behavioral syndromes associated with physiological disturbances and physical factors)	83	12.31
F6 (Disorders of personality and behaviour)	290	43.03
Borderline Personality Disorder (BPD)	216	32.24
F8 (Disorders of psychological development)	0	0
F9 (Behavioral and emotional disorders with onset usually occurring in childhood and adolescence)	188	27.89

<sup>a</sup> Gymnasium: 8 years of school after 4 years of elementary school, terminating with the general qualification for university entrance; Realschule: 6 years of school after 4 years of elementary school, terminating with a secondary school level-I certificate; Hauptschule: 9 years of elementary school. Percentages take account of missing values.

<sup>b</sup> Based on the Childhood Experience of Care and Abuse Questionnaire (CECA-Q)

<sup>c</sup> Multiple diagnoses possible.

were asked to indicate the year of first contact to a professional child and adolescent psychiatric service. The diagnostic assessment included several semi-structured interviews: The *Self-Injurious Thoughts and Behaviors Interview: German* (SITBI-G; Fischer et al., 2014) was used to quantify lifetime thoughts and incidents of NSSI as well as suicidal thoughts and behaviors. The SITBI includes questions concerning the participants age at first occurrence of different symptoms, i.e. thoughts of self-injury, self-injurious behavior, suicidal thoughts, and suicide attempts. The German version of the *Mini International Neuropsychiatric Interview for Children and Adolescents* (MINI KID; Sheehan et al., 2004) and the *Structured Clinical Interview for DSM-IV, Axis II* (SKID-II; Wittchen et al., 1997) were used to assess psychiatric pathology. In addition to the face-to-face interviews, participants completed various online questionnaires from home: The *Depressionsinventar für Kinder und Jugendliche* is a German self-report scale that measures severity of depressive symptoms in children and adolescents (DIKJ; Stiensmeier-Pelster et al., 2014). The *Symptom-Checklist-90-R* (SCL-90-R; Franke, 1995) consists of 90 items covering a variety of psychological symptoms. For each symptom the induced distress is assessed (rated 0–4). The SCL-90-R Global Severity Index (GSI) provides information on overall psychological distress.

### 2.3. Data analysis

Four variables quantifying help-seeking duration (HS-DU) were derived: years until help-seeking following incidence of (i) first thoughts to engage in self-injury, (ii) years since actual first self-injurious behavior, (iii) years since first thoughts on suicide, and (iv) years since first suicide attempt. These variables were calculated by subtracting age at respective symptom onset, as reported within the SITBI interview, from age at first contact to a professional child and adolescent psychiatric service. Age at first contact to a professional child and adolescent psychiatric service was calculated by subtracting the year of participants' birth from the year of first contact to a professional child and adolescent psychiatric service. Data were corrected for implausible values where possible (e.g. year of first contact to a professional psychiatric service was in the future).  $N = 82$  participants (12%) were excluded from calculations due to a lack of information on the time of their first contact to a professional child and adolescent psychiatric service. Further  $n = 17$  participants (3%) were excluded from analyses because their reported age at first contact to a professional psychiatric service or the age at first symptom onset was lower than six years, as the very limited knowledge on self-harm thoughts and behaviors of small children compromises the plausibility, reliability and validity of data from this source. For all analyses of HS-DU, only cases with information on the respective symptom onset including the information on the year of first occurrence were considered.

Descriptive statistics were calculated to depict HS-DU for different self-harm thoughts and behaviors. Findings of negative HS-DU in the investigated data indicated that, in some instances, onset of self-harm thoughts and behaviors occurred after the first contact to the professional health care system. In order to examine an explicit delay in help-seeking (help-seeking delay; HS-DE), additional analyses were run for individuals who sought help after onset of self-harm thoughts and behaviors only, excluding those that experienced onset after receiving professional help (negative HS-DU). To gain a better understanding of the negative HS-DU values, these were analyzed separately as well. Consequently, group differences for sex (*female* versus *male*) and BPD (*present* versus *not present*) on HS-DU and HS-DE were analyzed using two sample t-tests. Correlational analyses were calculated to examine the association between HS-DU and HS-DE with symptom severity, as indexed by global DIKJ scores (depression severity) and SCL-90-R (overall symptom severity). To depict cumulative help seeking probabilities, Kaplan-Meier curves (Kaplan and Meier, 1958) were generated. All analyses were conducted in Stata/SE (15.0, Stata Corp LLC, College Station, TX, USA), at an alpha level of 0.05.

## 3. Results

### 3.1. Help-seeking duration and help-seeking delay

Average HS-DU ranged from  $-0.64$  to  $1.29$  years for different symptoms. In 22% of overall cases, the first self-harm thoughts and behaviors occurred after contact to professional care was already established. Excluding those with negative HS-DU values, the shortest HS-DE was found following the first reported suicide attempt, and was longest after first thoughts of self-injury. The average interval between symptom onset and interview was  $M = 2.05$  years ( $SD = 1.84$ ). The interval between help-seeking and interview was  $M = 1.69$  years ( $SD = 2.58$ ). For a detailed overview on HS-DU and HS-DE values see Table 2.

### 3.2. Effects of sex

HS-DU differed between boys and girls regarding their first suicide attempt ( $t_{(255)} = 2.27, p = .024$ ), and the onset of NSSI ( $t_{(502)} = 2.22, p = .027$ ). Average HS-DU of boys was negative regarding both first suicide attempt and first NSSI. When only the negative values were included, boys reported longer durations than girls from first contact to a professional child and adolescent psychiatric service to first suicide attempt ( $t_{(82)} = 2.51, p = .014$ ) and first NSSI ( $t_{(108)} = 2.13, p = .036$ ), with an average duration for males of  $-5.57$  years ( $SD = 2.21$ , 95% CI =  $-6.85$  to  $-4.30$ ) and  $-4.57$  years ( $SD = 2.31$ , 95% CI =  $-5.62$  to  $-3.52$ ) respectively. There were no significant differences between boys and girls for other symptoms that were assessed. HS-DE did not differ between males and females for any of the reported self-harm thoughts and behaviors. For a detailed description, see Table 3.

### 3.3. Effects of BPD and symptom severity

Participants with BPD sought help later than those without BPD when they first experienced suicidal thoughts ( $t_{(476)} = -2.64, p = .009$ ) or NSSI ( $t_{(501)} = -2.21, p = .027$ ). The groups did not differ in HS-DU for other symptoms when negative values were included. Regarding HS-DE only, participants with BPD needed significantly more time to seek professional help than those without BPD after their first reporting of thoughts of suicide ( $t_{(365)} = -3.70, p < .001$ ) and following the onset of NSSI ( $t_{(391)} = -2.55, p = .011$ ), as illustrated in Fig. 1. For a detailed description, see Table 4.

Individuals with greater general symptom severity (SCL-90-R GSI) needed more time to seek help following incidence of suicidal thoughts in terms of HS-DU and HS-DE. General symptom severity had no association with HS-DU nor HS-DE for other self-harm thoughts and behaviors. Depressive symptoms (DIKJ) were positively correlated with HS-DU for thoughts of NSSI. There were no other significant associations between depressive symptoms and HS-DU, nor were there any associations with HS-DE. For a detailed description, see Table 5.

## 4. Discussion

The aim of the present study was to investigate adolescent help-seeking patterns by examining the duration from first onset of self-harm thoughts and behavior until clinical presentation. In almost a quarter of cases, this duration (HS-DU) was negative, indicating that the first self-harm thoughts and behaviors occurred after contact to professional care was already established. Focusing on the remaining sample with actual help-seeking delay (HS-DE), 12 months passed until participants sought help after their first suicide attempt. Average HS-DE was 20 months after first NSSI, 21 months after first suicidal thoughts, and 2 years after first thoughts of NSSI. The time span and the effects of demographic and psychiatric factors on HS-DU varied depending on the help-seeking variable assessed as well as the nature of thought and behavior investigated.

**Table 2**

Duration between first occurrence of self-harm thoughts and behaviors and first contact to child and adolescent psychiatry in years for different symptoms.

Self-harm thoughts and behaviors	HS-DU				HS-DE		
	n	M(SD)	95% CI	negative values (%)	n	M(SD)	95% CI
Thoughts of suicide	478	0.54(2.96)	0.27–0.80	23	367	1.74(1.84)	1.55–1.93
Suicide attempt	257	−0.64(3.00)	−1.00–0.27	33	173	0.99(1.35)	0.79–1.20
Thoughts of self-injury	154	1.29 (2.60)	0.87–1.70	12	135	1.98(1.80)	1.67–2.28
Self-injury	504	0.49(2.88)	0.24–0.75	22	394	1.65(1.75)	1.48–1.83

Abbreviations: HS-DU Help-seeking duration; HS-DE Help-seeking delay; M(SD) Mean(Standard Deviation); CI Confidence Interval.

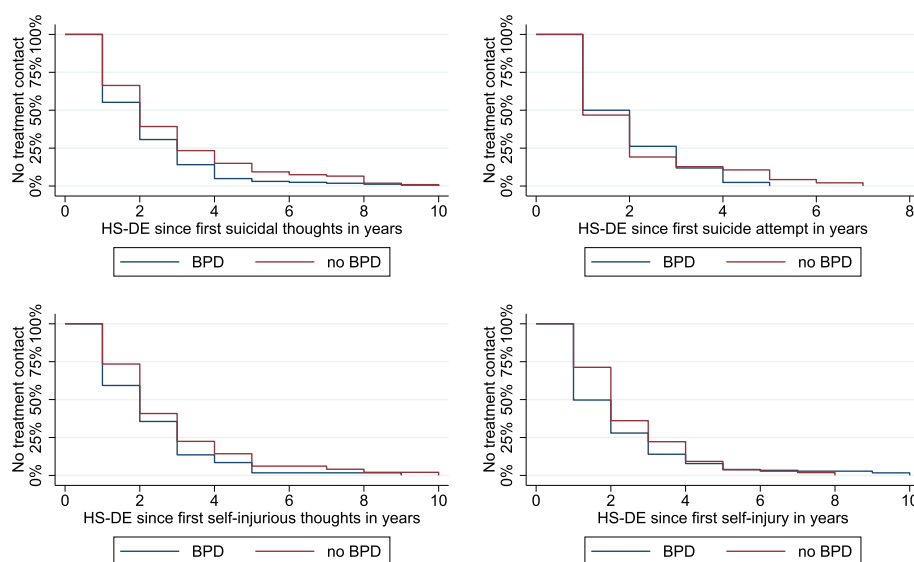
**Table 3**

Duration between first occurrence of self-harm thoughts and behaviors and first contact to child and adolescent psychiatry in years for different symptoms for girls and boys.

Self-harm thoughts and behaviors	HS-DU							HS-DE						
	Girls			Boys			<i>p</i>	Girls			Boys			<i>p</i>
	<i>n</i>	<i>M</i> ( <i>SD</i> )	95% CI	<i>n</i>	<i>M</i> ( <i>SD</i> )	95% CI		<i>n</i>	<i>M</i> ( <i>SD</i> )	95% CI	<i>n</i>	<i>M</i> ( <i>SD</i> )	95% CI	
Thoughts of suicide	414	0.61(2.82)	0.33 – 0.88	64	0.03(3.70)	−0.89 – 0.96	.143	324	1.71(1.76)	1.51 – 1.90	43	1.98(2.32)	1.26 – 2.69	.366
Suicide attempt	226	−0.48(2.82)	−0.85 – −0.11	31	−1.77(3.94)	−3.22 – −0.33	.024	156	0.96(1.34)	0.74 – 1.17	17	1.35(1.46)	0.60 – 2.10	.249
Thoughts of self-injury	136	1.24(2.60)	0.79 – 1.68	18	1.67(2.61)	0.37 – 2.97	.510	118	1.98(1.71)	1.67 – 2.29	17	1.94(2.41)	0.70 – 3.18	.929
Self-injury	441	0.60(2.70)	0.35 – 0.85	63	−0.25(3.87)	−1.23 – 0.72	.027	352	1.63(1.65)	1.45 – 1.80	42	1.90(2.39)	1.16 – 2.65	.327

Abbreviations: HS-DU Help-seeking duration; HS-DE Help-seeking delay; M(SD): Mean(Standard Deviation); CI Confidence Interval.

p-values refer to two-tailed t-tests.

**Fig. 1.** Probabilities of remaining untreated for self-harm thoughts and behaviors for patients with and without BPD. Abbreviations: BPD Borderline personality disorder; HS-DE Help-seeking delay.

#### 4.1. Help-seeking duration and help-seeking delay

Patients in the present sample had their initial contact to a professional child and adolescent psychiatric service around 1–2 years after their symptoms occurred, when only looking at patients with actual HS-DE. Given that a help-seeking delay of many years up to decades is consistently reported for adults who eventually sought help for mental health problems (Christiana et al., 2000; Wang et al., 2007), a maximum delay of 2 years appears quite short at first sight. However, considering the mean age in the present sample was only 15 years, 24 or even 12 months of untreated NSSI or even suicidal behavior can be considered a long time. The only pre-existing data on help-seeking delay for mental illness in adolescents stems from studies in youths with first episode psychosis, who sought professional help about 2–6 months after symptom onset (Dominguez et al., 2013; O'Callaghan et al., 2010). By comparison, HS-DE within the present sample was rather long, particularly

with regard to the potentially life-threatening nature of the reported thoughts and behaviors. Patients in the present sample sought help just before they transitioned from adolescent to adult mental healthcare services, a special period in the life of young patients that needs particular attention with regard to adolescent help-seeking behavior.

Whilst the majority of participants took quite long to seek professional help, in a considerable proportion of observations the first onset of self-harm thoughts and behaviors occurred while patients already were in contact to the professional mental healthcare system. This finding reflects the complex course of mental disorders. Within the present sample, all patients had their first contact to professional mental healthcare when they were children or adolescents. Considering they all reported serious psychiatric symptoms such as NSSI and suicidal behavior at this early stage of life, the symptoms that arose after first contact to professional care might thus be seen as a development of pre-existing problems. This assumption is supported by the finding that



**Table 4**

Duration between first occurrence of self-harm thoughts and behaviors and first contact to child and adolescent psychiatry in years for different symptoms for individuals with and without BPD.

Self-harm thoughts and behaviors	HS-DU							HS-DE						
	With BPD			Without BPD			<i>p</i>	With BPD			Without BPD			<i>p</i>
	<i>n</i>	<i>M(SD)</i>	95% CI	<i>n</i>	<i>M(SD)</i>	95% CI		<i>n</i>	<i>M(SD)</i>	95% CI	<i>n</i>	<i>M(SD)</i>	95% CI	
Thoughts of suicide	168	1.02(3.15)	0.54 – 1.50	310	0.27(2.82)	−0.04 – 0.59	.009	131	2.21(2.12)	1.84 – 2.57	236	1.48(1.60)	1.27 – 1.68	<.001
Suicide attempt	119	−0.33(2.82)	−0.84 – 0.18	138	−0.91(3.13)	−1.43 – 0.38	.123	79	1.16(1.49)	0.83 – 1.50	94	0.85(1.21)	0.60 – 1.10	.128
Thoughts of self-injury	70	1.31(3.01)	0.60 – 2.03	83	1.27(2.23)	0.78 – 1.75	.908	59	2.25(2.01)	1.73 – 2.78	75	1.77(1.61)	1.40 – 2.78	.127
Self-injury	170	0.89(2.83)	0.46 – 1.32	333	0.29(2.89)	−0.02 – 0.60	.027	136	1.96(1.68)	1.68 – 2.25	257	1.49(1.76)	1.28 – 1.71	.011

Abbreviations: BPD Borderline Personality Disorder; HS-DU Help-seeking duration; HS-DE Help-seeking delay; M(SD): Mean(Standard Deviation); CI Confidence Interval.

*p*-values refer to two-tailed *t*-tests.

**Table 5**

Correlations of help-seeking delay and help-seeking duration for different self-harm thoughts and behaviors in years with symptom severity (SCL-90-R) and depressive symptoms (DIKJ).

Self-harm thoughts and behaviors	HS-DU						HS-DE					
	SCL-90-R GSI			DIKJ			SCL-90-R GSI			DIKJ		
	<i>n</i>	<i>r</i>	<i>p</i>	<i>n</i>	<i>r</i>	<i>p</i>	<i>n</i>	<i>r</i>	<i>p</i>	<i>n</i>	<i>r</i>	<i>p</i>
Thoughts of suicide	434	.15	.002	431	.07	.155	339	.17	.001	336	.09	.090
Suicide attempt	229	.06	.328	227	.01	.986	157	.01	.875	156	.01	.872
Thoughts of self-injury	150	.15	.069	149	.21	.009	132	.06	.466	131	.11	.203
Self-injury	456	.08	.076	452	.05	.293	362	.05	.360	359	.01	.978

Abbreviations: HS-DU Help-seeking duration; HS-DE Help-seeking delay; SCL-90-R GSI Symptom Checklist-90 Global Severity Score; DIKJ Depressionsinventar für Kinder und Jugendliche.

Reported values are Spearman's rho correlations.

especially more severe symptoms, i.e. suicide thoughts, self-injurious behavior, and suicide attempts in particular, occurred after first treatment contact more frequently, whereas for the least severe symptom “thoughts of self-injury” negative HS-DU values were less frequent. Alternatively, some patients may have visited a psychiatrist as a child for one issue and visited the Atr!Sk clinic as adolescents because of new psychiatric problems. Other possible explanations for the delayed symptom onset include imitation effects of other patients, and that the treatment was ineffective or produced new symptoms as side effects. However, although the reasons for delayed symptom onset remain unclear, the present finding underlines the importance of an integral view on the interaction of symptom development and the help-seeking process in child and adolescent psychiatry.

#### 4.2. Effects of sex

Contrary to our hypothesis, there were no significant differences in HS-DE between boys and girls. The original assumption of a longer HS-DE in boys based on investigations in adults and the well documented finding that females reported more service use for mental health problems than males (Cotter et al., 2015; Han et al., 2017). The lack of a sex-specific difference in HS-DE in the present study suggests that the pattern of increased help-seeking behavior in females might not affect the delay in help-seeking for NSSI and suicidality in adolescents, when only looking at those who eventually sought help. This is in line with the evidence on HS-DE for psychosis (Bechard-Evans et al., 2007) and depression (Boerema et al., 2017), where the delay in help-seeking was not affected by participant's sex either.

However, differences between male and female participants became apparent when negative values were included (for HS-DU). Looking only at HS-DU where the clinical presentation happened before the onset of the investigated thoughts and behaviors, HS-DU was longer for boys than for girls regarding suicide attempts and NSSI. With an average of around 5 years from first clinical presentation until symptom onset, it seems that they received help for another problem when they were younger. In fact, youth are most likely to utilize professional mental

health care for attention-deficit/hyperactivity disorder (ADHD) and other disruptive behavior disorders, which are more frequent in boys than in girls (Merikangas et al., 2010, 2011). Exploratory analyses for the present sample revealed that diagnoses of ADHD and conduct disorders were more frequent for boys, however, there was no sex difference regarding the average age at first treatment contact. Thus, although there were no sex differences in actual HS-DE for NSSI and suicidality in the present study, and the underlying processes resulting in longer negative HS-DU for boys cannot be completely clarified, the findings highlight that there are sex differences in the process of help-seeking and symptom development that need further investigation, preferably including a higher proportion of male participants.

#### 4.3. Effects of BPD and symptom severity

Participants who met criteria for BPD diagnosis had a higher HS-DE after their first suicide thoughts and after first self-injury. This was in contrast to our hypothesis that individuals with BPD would seek help sooner than those without BPD, which derived from findings on higher service use in BPD patients (Bender et al., 2001). Up to now, there are no studies investigating HS-DE for BPD in particular. However, several studies found a higher burden of disease to be associated with a shorter help-seeking process (Boerema et al., 2017; Leaf et al., 1988; Wang et al., 2000) and, as BPD is a severe disorder with straining symptoms and high impact on everyday functioning (American Psychiatric Association, 2013), one could assume this consideration was applicable for BPD, too. Accordingly, we assumed that a higher symptom severity would be associated with a shorter HS-DE. However, in line with our findings for patients with BPD again, a higher overall symptom severity (SCL-90-R) was associated with a longer HS-DE after the first suicide thoughts, and, for HS-DU, the duration was longer after the first self-injury thought when more severe depressive symptoms (DIKJ) were reported. Although this seems to contradict the existing research on HS-DE and symptom severity, there are several considerations that match the findings from the present study.

Firstly, the HS-DE in the present sample refers to the very first time

the patients sought help for their symptoms. Although the initial contacting of a mental healthcare service is fundamentally different from the help-seeking process for recurring symptoms, demonstrated for example by an extended HS-DE in first-time help-seeking (Han et al., 2017), the majority of existing research on this topic focuses on help-seeking in later stages (Wang et al., 2004). Patterns from these observations cannot necessarily be transferred to first time help-seeking, highlighting the need for targeted studies on the initial help-seeking process.

Secondly, there is evidence that individuals experiencing an exceedingly high burden of mental illness, especially suicidality, are in turn rather unlikely to seek professional help (Wilson and Deane, 2011). As the sample included in this study consisted only of adolescents who were heavily affected by NSSI and suicidal behavior, this so-called help negation effect might explain longer HS-DE for individuals with additional BPD diagnosis, more severe depressive symptoms and higher overall symptom severity.

Finally, it must be noted that measures of symptom severity and BPD symptoms were only taken once participants already sought help. Thus, rather than arguing that symptom severity affected HSD, one could assume that those who sought help later, developed more serious impairments, as it has been reported for many mental illnesses, e.g. untreated psychosis (Lieberman and Fenton, 2000) and mood disorders (Ricky et al., 2017). In exploratory post-hoc analyses, the association of HS-DU and symptom severity was not explained by a correlation of symptom severity and age, a connection that could have been an indicator for a mental health deterioration over the past years. However, as the present study allows for cross-sectional analyses only, prospective investigations will be necessary in order to confirm underlying directional relationships. Nonetheless, it is possible that our data point to a potential benefit of early detection and intervention of NSSI and suicidal behavior including associated disorders such as BPD, and that a longer duration of untreated illness may result in higher illness severity, e.g. more symptoms of BPD (Chanen et al., 2017; Kaess et al., 2014).

#### 4.4. Limitations

All measures were assessed when participants had their first contact to the AtR!Sk outpatient clinic. This cross-sectional design does not allow any directional or causal conclusions, and the retrospective statement on the first occurrence of symptoms might not be reliable at all times. Recall accuracy is a controversial topic in the research on help-seeking duration. For adolescents, as described above, this research has so far focused on psychosis, the onset of which is gradual and ambiguous and thus difficult to remember (Register-Brown and Hong, 2014). In contrast to this, events like the first suicide attempt or the first time seeking professional help are usually very clear-cut and memorable and, at the time of data assessment, were only 2.05 years (for symptom onset) or 1.69 years, respectively, (for initial help-seeking) in the past. Further, patients were supported by their caregivers and by experienced clinicians to give reliable answers, e.g. by referencing dates to specific life events. However, the exact date of these events could not be reliably assessed, thus the calculation of HS-DU was based on more general and more reliable information (i.e. age of symptom onset and year of help-seeking). This approximation of HS-DU in years seems helpful to gain a first insight to the, up to date, sparsely researched field of help-seeking duration in adolescents. Importantly, the cross-sectional design of the present study cannot confirm any causal relationships. However, as there are few data available at this point, the observed relationships give a first impression of adolescent HS-DU and point out where future investigations, using prospective study designs, are indicated. Thus, although causal associations remain unclear and HS-DU is approximated in years, the findings do present valid insights into help-seeking duration and delay in adolescents with NSSI and suicidality and suggest several possible influencing factors.

Further, the sample consisted only of clinical patients with high

symptom severity, who eventually sought help, representing a rather specific subgroup of adolescents with mental health problems. Also, the uneven gender distribution with 82% female patients must be noted. The overrepresentation of girls in psychiatric settings is common (Cailhol et al., 2012; Mackenzie et al., 2012), however it does limit the generalizability of our findings to male adolescents and complicates interpretation of statistical comparisons.

Many of the findings discussed above reached significance for some of the investigated thoughts and behaviors, but not for others. There was no systematic pattern of findings, i.e. no systematic differences in significant effects between symptoms of suicidality vs. NSSI, or symptoms of intention vs. behavior. All calculated mean values and correlation coefficients suggested a trend for longer HS-DU for individuals with BPD and with higher symptom severity after every assessed symptom of NSSI and suicidality, even though the effect only reached significance for those with more observations. A strict separation of HS-DU between different symptoms is additionally difficult, as most participants reported more than one symptom and it is unclear for which exact problem they sought help. Thus, rather than focusing on special symptoms, the finding that a higher symptom severity is associated with longer first-time HS-DU can be regarded as a trend in adolescents with NSSI and suicidality in general.

#### 5. Conclusions

The present study is the first to investigate help-seeking duration and delay in self-harm thoughts and behavior in a consecutive clinical sample of adolescents. The notable proportion of new symptoms that occurred following treatment onset highlight the complexity of symptom development in young patients, especially for boys. Excluding the belated occurrence of symptoms, there was a delay from first symptom onset until clinical presentation of up to two years in some cases. Considering the urgency of prompt treatment for both suicidality and NSSI, adolescents remained untreated for a significantly long period of time. The association of later treatment contact and higher symptom severity emphasizes the need to accelerate the help-seeking process. A better understanding of barriers and facilitators to professional help will contribute to enhance measures of tailored support for young patients in their help-seeking process. In order to understand the exact interrelation of mental illness, help-seeking duration, and influencing factors, longitudinal research is critical. Identifying and targeting causes for enhanced help-seeking duration is of particular importance to avoid manifestation of mental illness in early years and to improve the mental health of patients not only in their youth but for their entire lifetime.

#### CRedit authorship contribution statement

**Sophia Lustig:** Formal analysis, Writing – original draft. **Julian Koenig:** Conceptualization, Formal analysis, Writing – review & editing. **Franz Resch:** Resources, Supervision. **Michael Kaess:** Conceptualization, Writing – review & editing, Supervision, Funding acquisition.

#### Declaration of competing interest

The authors have no conflict of interest to declare.

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