

Original Article

Suicidal behaviour among youngsters in a suicide low-incidence population

Símun Johannesen¹, Pál M. Weihe^{2, 3} & August G. Wang^{1, 2}

1) Copenhagen University Hospital – Centre of Psychiatry Amager, Denmark, 2) University of the Faroe Islands, 3) National Hospital of the Faroe Islands, the Faroe Islands

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ABSTRACT

INTRODUCTION. The Faroe Islands are a country in the North Atlantic with a population of approximately 53,000 inhabitants. The suicide incidence rate is very low, at some 5/100,000 annual suicides. The Faroese school system participates in the European School Survey Project (ESPAD) every four years, organised by the Department of Occupational Medicine and Public Health. This study aimed to describe the frequency of suicide attempts and ideation among ninth-grades in the Faroes and to elucidate suicide risk factors.

METHODS. Data from the ESPAD surveys were obtained from the partners. We used data on suicide attempts and thoughts of self-harm and included the risk factors of gender, smoking and alcohol consumption. Binary logistic regression was used to calculate associations.

RESULTS. The participants were 16-year-old ninth graders. The prevalence of young people with suicide attempts was similar to those of other European countries, as was the prevalence of thoughts of self-harm. The prevalence of suicide attempts and thoughts of self-harm was higher among girls and associated with daily smoking and alcohol. The prevalence of thoughts of self-harm was higher among girls and daily smokers but not associated with alcohol consumption.

CONCLUSIONS. This study found that the number of suicide attempts was in line with those of other European countries, as was the prevalence of students with thoughts of self-harm. We discuss reasons why this is the case in an otherwise suicide low-incidence population. The association between suicide attempts and thoughts of self-harm on the one hand, and the risk factors of female gender, daily smoking and alcohol consumption (only for attempted suicide) on the other was expected.

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In Denmark, every fifth case of death for young people aged 10-24 years is caused by suicide [1]. On average, out of a population of 5.9 million, approximately 600 individuals commit suicide in Denmark each year [2], which equates to 10-12 per 100,000 annually.

For each completed suicide, multiple suicide attempts occur. In Denmark, ten times more women than men attempt suicide, but three times more men than women complete suicide [3].

The Faroe Islands, with a population of approximately 53,000 in recent years, reported a suicide rate of between zero and six cases annually. From 1988 to 2019, a total of 86 suicides were recorded, equivalent to a mean 2.7 suicides/year. This equates 5.4 per 100,000 citizens annually [4].

Studies have shown that the highest number of suicides in Denmark occurs among the elderly population [2]. On

the Faroe Islands, we do not see this increased suicide prevalence among the elderly, and the number of females of all ages who commit suicide is also low in the Faroes [5].

Very few studies have explored the suicidal behaviour of young people in the Faroe Islands. A study in the Faroes showed that 9.9% of Faroese eighth graders have attempted suicide [6]. Suicides among young people in the Faroes occur only sporadically [4].

It is difficult to predict which suicide attempts will be followed by a completed suicide. Many suicide risk factors have been identified, among which a previous suicide attempt is the most significant risk factor. Thoughts about suicide and self-harm have also been identified as risk factors. Risk factors associated with suicidal behaviour include gender, tobacco smoking and alcohol abuse [7-13].

The population of the Faroe Islands is a low-incidence suicide population. The present study explored the frequencies of attempted suicide and thoughts of self-harm among young people in the Faroese population.

Our hypotheses were that:

- a) in line with the low number of completed suicides in the general population, there will also be a very limited number of suicide attempts and thoughts of self-harm among young people in the Faroes.
- b) gender, tobacco smoking and alcohol use will be risk factors for suicide attempts and thoughts of self-harm, as seen elsewhere.

Methods

In 1995, the Faroes, among many other countries, joined the European School Survey Project on Alcohol and Other Drugs (ESPAD) surveys. From 1995 to 2019, data were collected every fourth year from 49 European countries [8]. In the Faroe Islands, the ESPAD partners were the educational system and the Department of Occupational Medicine and Public Health.

In 2003, ESPAD included a question on whether the student had ever attempted suicide or had thoughts of self-harm. We included the results of the questionnaires from 2003, 2007, 2011, 2015 and 2019 in this study. Approximately 600 Faroese participated each year, corresponding to an approx. 80% participation rate. The ESPAD arrangers agreed on questions to be used, which were translated into different languages. The same questions were used across all countries to allow for subsequent comparison.

The students who participated were anonymous. Supervisors were present to ensure that the survey was completed as planned. The students had 90 minutes to answer the questions. A minimum distance between students was required, and they were not allowed to communicate with each other. The questionnaire responses were transformed into data in SPSS. The answer options were arranged on a Likert scale featuring various gradations for more precise measurements. To the question of whether the student had ever attempted suicide, the answer options were: 1. Never, 2. Once, 3. Twice, 4. Three or four times, 5. Five times or more. The students who had never attempted suicide were assigned to group 1, while those who had attempted suicide once or more were assigned to group 2.

For tobacco smoking during the past 30 days, we divided the answers into two groups: group 1 included participants who answered under one cigarette a day. Group 2 comprised participants answering one or many cigarettes a day.

We operationalized the risk factor of alcohol by dividing it into two groups: One group with three or more nights out a month having five or more drinks per night, and the other group with under three nights out having ≥ 5 drinks.

As only some students answered all questions, the total number of answers differed from one question to the next. In SPSS, statistics were calculated with odds ratio (OR) (95% confidence interval (CI)) using multivariate binary logistic regression including gender, smoking and alcohol use as risk factors. The significance level was $p < 0.05$.

Trial registration: not relevant.

Results

The average participation rate over the years was 80%. Missing data were approx. 3%. **Figure 1** and **Table 1** show that the number of suicide attempts fluctuated around 9.4%. The number of teenagers with thoughts of self-harm varied from 2003 to 2019. Thoughts ≥ 5 times varied around 11.5%, and thoughts 1-4 times around 21.2%.

FIGURE 1 Year and suicide attempts as percentages.

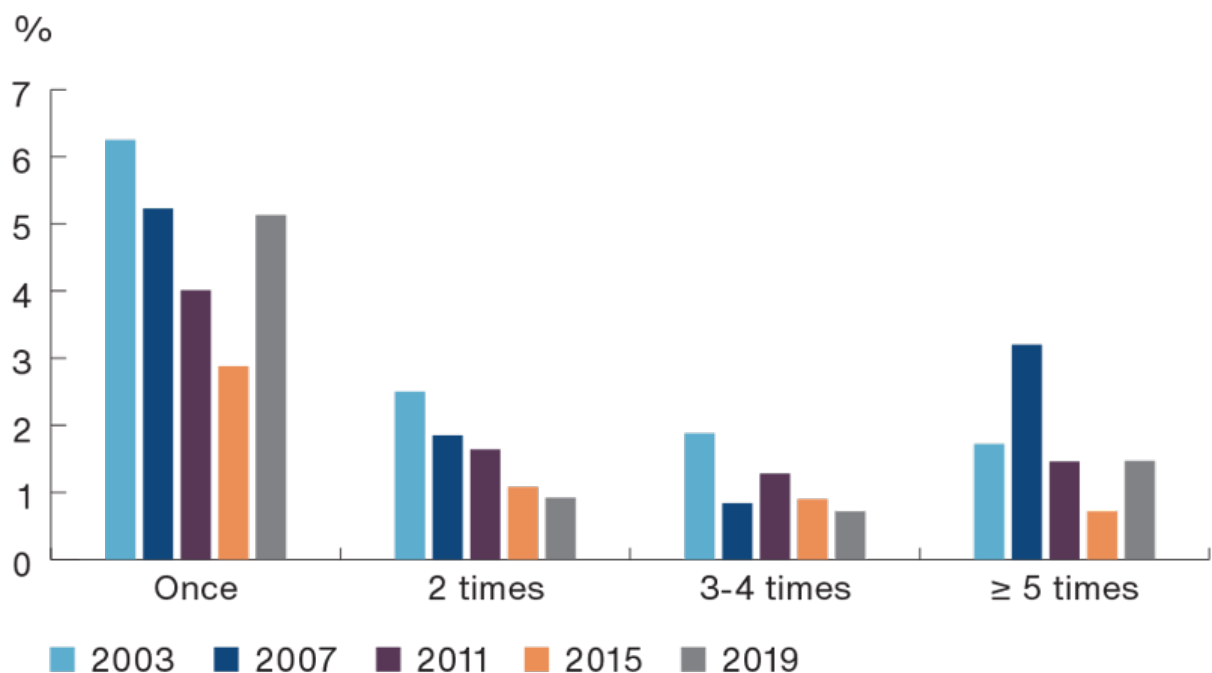


TABLE 1 Year, suicide attempts and thoughts of self-harm in numbers and percentages. The values are n/N (%).

	2003	2007	2011	2015	2019
≥ 1 suicide attempts	79/640 (12.3)	66/593 (11.1)	46/548 (8.4)	31/555 (5.6)	49/546 (9.0)
Thoughts of self-harm $\geq 5 \times$	82/647 (12.7)	89/614 (14.5)	44/557 (7.9)	56/569 (9.8)	69/556 (12.4)
Thoughts of self-harm 1-4 \times	139/647 (21.5)	132/614 (21.5)	134/557 (24.1)	113/569 (19.9)	106/556 (19.1)

In **Table 2**, the multivariate binary logistic regression OR is presented with 95% CI. Possibly statistically significant differences were determined from the OR (95% CI). In **Table 2**, we see that suicide attempts, along with all thoughts of self-harm, were significantly more common among girls than among boys.

TABLE 2 Suicidal behaviour with results from multivariate binary logistic regression.

	≥ 1 suicide attempts		Thoughts of self-harm ≥ 5 ×		Thoughts of self-harm 1-4 ×	
	n (%)	logistic regression, OR (95% CI)	n (%)	logistic regression, OR (95% CI)	n (%)	logistic regression, OR (95% CI)
<i>Gender</i>						
Girls	201/1,446 (13.9)		263/1,452 (18.2)		386/1,452 (26.7)	
Boys (ref.)	72/1,467 (4.9)	11.33 (4.45-29.10)*	77/1,471 (5.3)	4.00 (3.02-5.22)*	232/1,471 (15.8)	3.01 (2.25-4.02)*
<i>Smoking</i>						
Daily smoker of cigarettes	128/534 (24.2)		77/545 (22.9)		114/545 (24.3)	
Not daily smoker of cigarettes (ref.)	144/2,390 (6.0)	3.59 (2.05-6.30)*	255/2,373 (9.2)	1.51 (1.04-1.80)*	504/2,373 (20.6)	3.86 (2.71-5.52)*
<i>Alcohol</i>						
≥ 3 nights out with ≥ 5 drinks of alcohol	85/408 (21.0)		334/2,877 (20.9)		611/2,877 (25.6)	
< 3 nights out with ≥ 5 drinks of alcohol (ref.)	187/2,510 (7.2)	3.82 (1.62-5.78)*	253/2,470 (10.2)	0.85 (0.82-2.38)	507/2,470 (20.5)	1.42 (0.85-2.38)

CI = confidence interval; OR = odds ratio; ref. = reference.
*) p < 0.05.

For smokers, suicide attempts and self-harm thoughts ≥ 5 times were significantly more common than among non-smokers. Although thoughts of self-harm occurring 1-4 times were not significantly different, they were more frequent among smokers.

Among respondents with three nights out with ≥ 5 drinks, suicide attempts were significantly more common than for respondents with fewer or no nights out with drinks. However, we recorded no difference in the prevalence of self-harm thoughts between these groups.

Discussion

Table 1 shows that approx. 9.4% of young people have attempted suicide. The comparative figure from other European countries was, on average, 10.5%, with results falling in the range: 4.1-23.5% [8]. On average, 21.2% had experienced thoughts of self-harm 1-4 times, whereas 11.5% had experienced thoughts of self-harm five times or more. No clear trend was observed in the number of young people with thoughts of self-harm through the years. In European countries, an average 7.4% had experienced thoughts of self-harm five times or more, a proportion lower than that observed in the Faroes [8]. These findings contradict our hypothesis, as we had anticipated a lower prevalence in the Faroes, given that it is a low-suicide population.

It is a well-known phenomenon that teenage girls are more likely to experience self-harm thoughts or suicide attempts than teenage boys. [9]. However, young men are at a higher risk of dying from suicide attempts than young women are [1]. Table 2 shows that 15-16-year-old girls have a higher risk of self-harm and of having thoughts of self-harm than boys do. The same trend was seen in other European countries. For all 17 participating European countries, the frequency of suicide attempts was significantly higher for girls than for boys [8].

The survey showed that daily tobacco smokers had a higher risk of attempting suicide and of having thoughts of self-harm (all answer options) than young people who smoked less or did not smoke. A survey of 17 ESPAD countries showed a similar significant association [8].

The present survey showed an increased number of suicide attempts among teenagers who drink five or more drinks of alcohol per night three or more times per month than among those with less than three nights drinking ≥ 5 drinks per month. Teenagers with high alcohol consumption have a significantly higher risk of attempting suicide than teenagers with low alcohol consumers, but this is not the case for thoughts of self-harm. Other studies also show an increased trend towards suicide attempts among people who consume alcohol [10]. Logistic regression (Table 2) showed that gender was generally the primary risk factor, followed by smoking and alcohol. The high prevalence of suicide attempts and self-harm associated with gender, smoking, and, to some extent, alcohol may indicate that these young people are struggling, seeking help or expressing distress [14]. This is

interpreted as an ambivalence between an act of despair and a plea for help. Apart from gender, these factors may be modifiable.

Perspectives

A very low number of suicides has been registered in the Faroes, with 0-6 middle-aged suicides per year in the overall population [4]. From 2003 to 2019, an average of 9.4% of ninth graders attempted suicide. Self-harm thoughts were also as common in the Faroes as in Europe. A previous suicide attempt, as well as self-harm, are serious risk factors for subsequent suicide [15]. Therefore, one might expect a higher number of completed suicides in society; however, this has not been observed thus far.

There are solid social relations in the small family community on the Faroes, and a relatively large part of the population is religious. Durkheim's theory describes solid social relations and religiosity as protective factors against suicide [16]. These protecting factors, combined with the relatively low consumption of alcohol in the Faroes, may be part of the explanation for the low number of committed suicides. This may call into question the "iceberg" theory of suicide, which suggests that for every suicide in a community, there are multiple attempts, and behind those, an even higher number of individuals experiencing suicidal ideation and thoughts of self-harm [17]. Alternatively, we might be facing a delayed effect, with an increased share of the adult and elderly population committing suicide. Another possibility is that protective factors in the Faroes are sufficiently strong to prevent individuals from progressing to suicide.

Nearly 3,000 individuals participated in the survey, which is a considerable number that reinforces the results of the present study. Furthermore, the validity of the survey was strengthened by the fact that answers were provided anonymously. The same questionnaire was employed across numerous European countries, providing excellent opportunities for making comparisons between them. The survey covers all ninth graders in the Faroes, a total population rather than a random sample. This excludes selection bias and makes the results more generalisable. Teachers were absent, and the students sat separately, which strengthened the answers. Standard data cleansing excluded useless questionnaire results from the survey. During data cleansing, questionnaires with over 50% blank answers were excluded. Also, questionnaires with repetitive or incoherent answers were excluded.

Conclusions

This study indicated that the number of 15-16-year-old students in the Faroes who have attempted suicide was similar to those of other countries, and that the share of Faroese students with thoughts of self-harm was in line with the mean figures reported by other European countries. However, registers of suicide on the Faroes indicate very few committed suicides.

As expected, we found a higher prevalence of girls than boys who attempt suicide and have thoughts of self-harm. Furthermore, we recorded a higher prevalence of youngsters with suicide attempts and all thoughts of self-harm among daily tobacco smokers than among non-smokers. Similar findings were observed regarding suicide attempts, but not in relation to self-harm thoughts among young individuals with high alcohol consumption compared to those with low consumption.

Ethics

The study involves an anonymous survey and data from public statistics. The study was conducted in accordance with the recommendations of the National Committee on Health Research Ethics and according to the regulations of the Faroese Data Protection Agency.

Correspondence August G. Wang. E-mail: august.g.wang@gmail.com

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