

Religion and Health in Arctic Norway – the association of religious and spiritual factors with suicidal behaviour in a mixed Sámi and Norwegian adult population – The SAMINOR 2 Questionnaire Survey

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ABSTRACT

Given the higher suicide rates among the adult population in the northernmost part of Norway and some unfavourable psychosocial outcomes associated with the Laestadian revival movement in this region, it is reasonable to investigate the relationship between religiosity/spirituality and suicidal behaviour in this context. This study used cross-sectional data from the population-based SAMINOR 2 questionnaire survey (2012; $n = 11,222$; 66% non-Sámi; 22% Laestadian-affiliated; 27% response rate) in mixed Sámi-Norwegian areas of Mid and North Norway. We analysed the associations between religious/spiritual factors and lifetime suicidal ideation and attempts, age at the first attempt, motives, and number of attempts. Multivariable-adjusted regression models considering sociodemographics, Sámi background and self-ascription, and health-related risk factors were applied. Sámi and Laestadian affiliations were significantly associated with religious self-ascription, regular attendance, and Established Church membership. In a fully adjusted model, Laestadian family background was negatively associated with lifetime suicide attempts (OR = 0.66, 95% CI: 0.47–0.93) compared with other family circumstances, whereas regular religious participation was inversely associated with suicide ideation (OR = 0.74, 95% CI: 0.61–0.91) compared with non- or rare attendance. The findings suggest that Laestadianism and religious attendance contribute to less suicidal behaviour among adults in Sámi-Norwegian areas.

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Introduction

Religion and spirituality (R/S) describe the search for the sacred, transcendent, divine, or supernatural, as opposed to the secular, humanist, rational, or scientific [1]. Spirituality typically denotes either deep traditional religiosity or personal religiosity outside organised religion [1]. Several extensive longitudinal studies show that R/S is protective against suicidal behaviour [2–5], with religious service attendance being the strongest R/S factor [2] and even protective against completed suicides [3–5]. Social support received from fellow believers [6] and moral objections against suicide due to its proscription by several world religions, especially Christianity, seem to explain some of R/S's protective effects against suicidal behaviour [7]. However, this favourable effect varies across ethnic groups, e.g. between Latino and Black subgroups in the US [8], and a reverse effect is found in indigenous populations [9]. This study by Stack and Cao (2020) among

indigenous Canadians ($n = 15,294$) found that affiliation with traditional indigenous spirituality was significantly associated with lifetime suicide ideation compared with lack of religious affiliation, whereas being Christian was no different from the latter. The study did not include other R/S indicators.

The northern and central parts of Norway have areas with a mixed population of Norwegians and Sámi, the latter being indigenous people primarily living in the northern territories of Norway, Sweden, Finland, and the Russian Kola Peninsula. Although the exact size of the Sámi population is unknown, the assumed largest proportion lives in Norway. The Sámi traditionally adhered to nature-oriented (shamanistic) religion, but missionary efforts during the 18th century caused a significant religious change. During the latter part of the 19th century, the teetotalist Laestadian revival movement strongly influenced this region. It originated about 1845 around the Swedish Lutheran state church vicar Lars Levi Laestadius (1800–1861) in the Finnish-

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 Supplemental data for this article can be accessed [here](#).

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Sámi population of Swedish and Finnish Lapland and was brought by Sámi and Finns to their ethnic peers in Norway. Laestadianism only later spread to the Swedish and Norwegian populations [10]. During the enforced Norwegian governmental assimilation programme from the mid-19th to the mid-20th centuries [11], Finns/Kvens (an ethnic Finnish minority in North Norway) and Sámi found acceptance of their languages and cultures in the movement [12]. Laestadianism in the areas included in this study, is associated with ethnic (particularly Sámi) minority affiliation and represents an acculturative phenomenon different from Laestadianism in other parts of the world. Traditionally and also today, the established state churches are dominant denominations across native groups in the Nordic region and encompass most Laestadians as well.

The revival has had a considerable regional influence, especially on the Sámi people, presumably contributing to the higher religious participation rate and lower alcohol consumption in Sámi than non-Sámi districts of Finnmark County [13]. Laestadianism is also associated with abstinence and less drinking and intoxication among Sámi and non-Sámi adolescents and young adults in North Norway [14]. Nevertheless, the suicide rate of Finnmark is the highest in Norway (1987–2016) [15]. Furthermore, the Sámi of North Norway (1970–1998) have a 30% higher suicide mortality rate [16], and more recent and extensive studies reveal a higher prevalence of suicide ideation and attempts among adolescent and young adult Sámi in Sweden and Norway compared with their majority counterpart [17–19]. The Sámi also have significantly higher prevalence of anxiety; depression; post-traumatic stress symptoms; and childhood exposure to emotional, physical, and sexual violence [20], which are all well-known risk factors for suicidal behaviour [21]. Poorer self-rated health (SRH), another risk factor for suicide [22], was found among Laestadians in Finnmark [23], but the study (conducted in 1990) did not adjust for ethnicity. As among other indigenous populations, acculturative stress is a relevant explanation for the higher prevalence of suicidal behaviour among the Sámi [18,19]. However, Laestadian adherence or family background (combined variable) was associated with higher lifetime exposure to violence in women after adjusting for ethnicity [24].

Due to the higher suicide rates and the unfavourable psychosocial outcomes associated with the Laestadian revival movement in this context, we aimed to examine whether R/S, particularly Laestadianism, is a protective or risk correlate of suicidal behaviour in Sámi-Norwegian areas. Because of the considerable correlation between Laestadianism and Sámi ethnicity in this

area, the enterprise would have to include ethnic self-description and background among its control variables. To our knowledge, this topic has not been studied earlier in the Nordic countries.

Methods

Procedure and sample

This study applied data from the second survey of the *Population-based Study on Health and Living Conditions in Regions with Sami and Norwegian Populations – The SAMINOR 2 Questionnaire Survey*. The survey (following the *SAMINOR 1 Survey*, carried out in 2003–2004) was conducted in 2012 by the Centre for Sami Health Research, UiT – The Arctic University of Norway – aiming to explore the health and living conditions in the Sámi and non-Sámi populations [25]. All inhabitants aged 18 to 69 years in 25 municipalities or districts with mixed Sámi and Norwegian settlements in Mid and North Norway were invited (27% response rate). After the exclusion of respondents without information regarding ethnicity, R/S, and suicidal behaviour, the study sample included 11,222 participants (consult [Figure 1](#) for details concerning the inclusion process), of whom 65.9% were non-Sámi and 55.9% were females ([Table 1](#)).

Instruments and variables

Suicidal behaviour – outcome variables

Suicidal ideation was covered by the question “Have you considered taking your life?” The possible answers were “Yes, during the past year”, “Yes, earlier”, and “No, never”. The question “Have you tried to take your life?” correspondingly tapped suicide attempts. Due to the small number of positive answers concerning past year ideation ($n = 303$) and attempts ($n = 26$), we merged the data into two dichotomous variables: 1) lifetime prevalence of suicide ideation and 2) lifetime prevalence of suicide attempts. As the reported suicide attempts might be of different degrees of lethal intent and severity, there should be an assessment of some aspects of these attempts. Thus, three more questions assessed the suicide motives (“A clear wish to die”, “The situation felt unbearable”, and “I wanted help from someone”, multiple answers possible), the age at the first suicide attempt, and the total number of attempts. For these three questions, we only included the responders who explicitly reported suicide attempts.

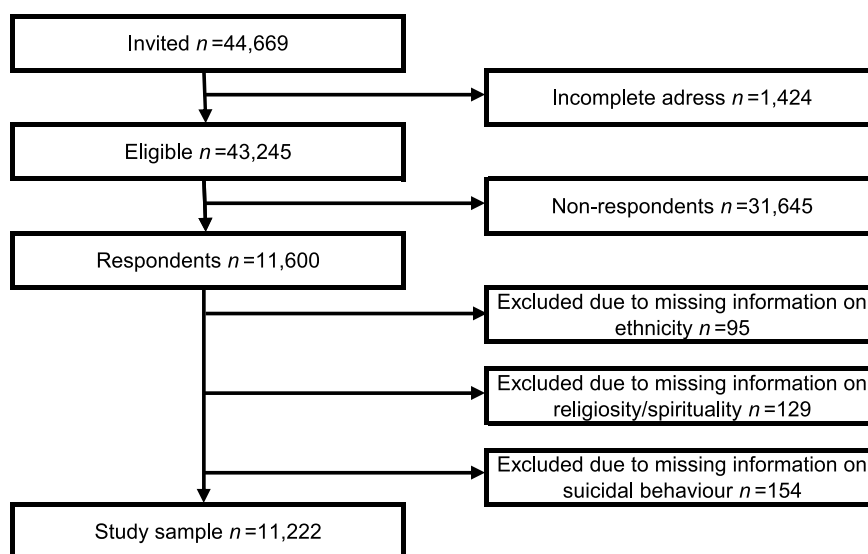


Figure 1. Flow chart of inclusion – Religion and Health in Arctic Norway – the SAMINOR 2 Questionnaire Survey, 2012.

Indicators of R/S – independent variables

Contemporary scholars apply a multidimensional-multilevel definition of R/S encompassing identity, culture, relationship, and practice [26] from the biological to the global level [27]. Thus, the measures of R/S in SAMINOR 2 are suitable for studying both social, cultural, and private aspects of a religiously homogeneous Norwegian study population dominated by pietist-influenced or traditional Lutheranism – particularly the Established Church [28]. In addition, Laestadian affiliation is explored due to its historical importance in the study area [12].

The religious attendance rate during the past six months at (a) a church, (b) congregation house, or (c) other religious building was reported separately as “more than three times a month”, “1–3 times a month”, “1–6 times”, or “never”. The total participation rate at all three building categories was pooled and categorised as “regularly” (once per month or more often in the past 6 months; rural church services are usually held once or twice a month [29]), “irregularly” (1–6 times in the past 6 months), or “never or rarely” (not in the past 6 months).

Regarding personal adherence to a religious group or fellowship of belief, the respondents could check off one or more categories: “Established Church”, “Laestadian congregation”, “other religious congregation”, “non-religious denomination”, and “not a member of any denomination”. We accordingly made five dummy variables of congregational affiliation.

The adherence question was repeated for grandparents and both parents, revealing a Laestadian family background by at least one parent or grandparent versus other family backgrounds – indicating

Laestadianism as a possible cultural affiliation and psychosocial factor during childhood, e.g. influencing drinking behaviour [14,30].

The final parameter is a scale combining the view of life (atheist, agnostic, or believer in a god) and religious importance or commitment (religious or not-so-devoted believer) and comprised four categories: “I am a believer/confessing or personally Christian” (“religious”); “I believe there is a god, but religion is not so important in my everyday life” (“less devoted believer”); “Unsure”; “I do not believe there is any god” (“non-believer”).

Sociodemographic control variables

The sociodemographic factors included sex, age, education level (continuous variable categorized as 1–9 years, 10–12 years, 13–15 years, or >15 years), total household gross income (<301,000 NOK; 301,000–750,000 NOK; >750,000 NOK), living arrangement (living with someone or alone), municipality (described in Brustad et al. [2014] [25]), and ethnicity. The ethnicity report (Norwegian, Sámi, Kven, and/or “other”) included home language (respondent, parents, and all grandparents), ethnic background (respondent and both parents), and self-ascription. The final ethnic categories were “non-Sámi self-ascription” (89.7% unmixed Norwegian self-ascription and 7.1% non-Norwegians), “Sámi self-ascription”, and “Sámi background without Sámi self-ascription” (95.4% Norwegian self-ascription), considering the effect of assimilation [31]. The Kvens ($n=349$), being few and mainly ethnically mixed (85.1%), were divided between the non-Sámi ($n=125$), the Sámi ($n=162$), and the Sámi background groups ($n=62$).

Table 1. Sample description showing the differences in religious/spiritual factors across gender and ethnic categories.

	Gender				Ethnicity											
	Total		Male		Female		Gender comparison		Non-Sámi		Sámi self-ascription		Sámi family background ^c		Ethnic comparison	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%		χ^2
Religious/spiritual factors																
Family background																
Laestadian family background	2,323	23.08	1,009	23.12	1,314	23.06										
Other family background	7,740	76.92	3,356	76.88	4,384	76.94										
Congregational affiliation^a																
Established Church	9,354	86.05	4,125	86.46	5,229	85.74	1.2†									
Laestadian congregation	448	4.12	199	4.17	249	4.08	0.1†									
Other religious congregation	395	3.63	151	3.16	244	4.00	5.3*									
Non-religious denomination	366	3.37	150	3.14	216	3.54	1.3†									
No denomination	938	8.63	433	9.08	505	8.28	2.1†									
Religious attendance rate^b																
Never or rarely (not past 6 months)	3,127	28.18	1,571	32.05	1,556	25.12	73.0***									
Irregularly (1–6 times past 6 months)	5,400	48.67	2,315	47.24	3,085	49.80										
Regularly (once pr. month or more past 6 months)	2,569	23.15	1,015	20.71	1,554	25.08										
Religious importance and view of life																
I do not believe there is any god	1,882	16.96	1,047	21.35	835	13.49	222.2***									
Unsure	2,083	18.77	1,050	21.41	1,033	16.69										
I believe there is a god, but religion is not so important in my everyday life	5,352	48.24	2,193	44.72	3,159	51.03										
Religious (I am a believer/confessing Christian)	1,778	16.03	614	12.52	1,164	18.80										

n = number of observations; Freq. = frequency; χ^2 -value. Bold values represent cells having adjusted residuals of p -values \leq 0.05.

* = p -value \leq 0.05; ** = p -value \leq 0.01; *** = p -value \leq 0.001; † = not significant.

^aMultiple affiliations possible.

^bAt a church, congregation house, or religious building.

^cWithout Sámi self-ascription.

Health-related control variables

Both Laestadian and many other religious groups endorse health-related norms, e.g. related to alcohol and substance use and extramarital sexual intercourse, and social modelling of healthy behaviours might reduce the risk of suicidal behaviour in such settings [1]. To adjust for this effect in our analyses, we included five important health-related control variables. First, tobacco use and alcohol consumption are well-known risk factors for suicidal behaviour [32,33] and relevant confounders when studying a temperance movement like Laestadianism. Also, alcohol consumption is a known partial mediator of the protective effect of religious attendance on completed suicides [4]. Furthermore, SRH is a measure of general health, and poor SRH is a risk factor for suicide [22] and associated with suicidal thoughts in Sámi adolescents in Norway [34]. Finally, depression and anxiety disorders and exposure to emotional, physical, or sexual violence are well-known strong risk factors for suicidal behaviour [21] and relevant confounders explaining the low prevalence of suicidal behaviour in R/S social settings. Also, depressive symptoms partly mediate the protective effect of religious attendance on completed suicides [4].

Lifetime exposure to emotional, physical, or sexual violence was reported separately for the past year, earlier in adulthood, and during childhood and finally merged into a dichotomous variable of lifetime violence exposure [24].

Anxiety and depression symptoms were defined as a score above the clinical cut-off level (1.85) on the Hopkins Symptom Checklist (10-item version) during the past four weeks [35]. The instrument and its cut-off level are validated for Norwegian and Sámi populations and subgroups having Sámi family background without Sámi self-ascription [36].

Smoking and snuffing were tapped separately (“never”, “former”, “sometimes”, or “daily”) and finally pooled and categorised as “never or previously” (snuffing or smoking), “current cigarette or snuff user” (either snuffing or smoking – daily or occasionally), or “current dual user” (snuffing *and* smoking – daily or occasionally).

Drinking frequency during the past year was reported on an eight-point scale from “never consumed alcohol” to “4–7 times a week” and finally categorised as “never or not in the past year”, “a few times to weekly”, or “more than two times per week”.

SRH was reported on a four-point scale from “poor” (1) to “very good” (4) and dichotomised into “good” (“good” or “very good”) or “poor” (“poor” and “not so good”).

Statistical analyses

Using Stata 16 and a significance level of five percent, we applied chi-square tests to compute differences across categorical data and conducted t-tests and Bonferroni tests for the continuous data. Mixed-effect logistic regression models – including sociodemographic and health-related risk factors – were used to estimate the association of the different R/S categories with suicide ideation, attempts, and suicide motives. Municipality was added as a random effect in the analyses, taking local clusters of suicidal behaviour and assumed, unmeasured differences into account, including variations between the Laestadian groups.

Ethical considerations

The Norwegian Regional Committees for Medical and Health Research Ethics approved this study (reference code 2006/1766/REK nord).

Results

Sample description

The lifetime prevalence of suicide ideation in the total sample was 17.6% (Table 2), whereas 4.0% – 447 responders – reported lifetime prevalence of suicide attempts. Among those reporting suicide attempts, the mean age for the first attempt was 23.01 years (SD 11.30, not tabulated), and the mean total number of attempts was 2.62 (SD = 4.00). The most frequent motive for suicide attempts – reported by 93.9% – was that the situation felt unbearable (not tabulated). Overall, 56.0% reported a clear wish to die as a suicide motive, being more frequent among males (66.1%) than females (50.0%, $\chi^2[1] = 7.4, p = 0.007$). In total, 59.0% reported having made attempts that were calls for help, more frequently reported by females (64.5%) than males (48.1%, $\chi^2[1] = 7.7, p = 0.006$).

The sample comprised 86.1% Established Church-affiliated individuals, 4.1% Laestadian adherents, 3.6% affiliated with other congregations, 8.6% unaffiliated, and 3.4% affiliated with non-religious denominations (Table 1). Overall, 23.1% had a Laestadian family background (21.3% either Laestadian family background or personal adherence, not tabulated). The rates of regular religious attendance and religious self-ascription were 23.2% and 16.0%, respectively (Table 1).

In both Sámi categories, the frequency of Laestadian adherence was four times higher, and the frequency of Laestadian family background more than three times higher than among the non-Sámi. The regular attendees were also more common among those with Sámi

Table 2. Odds ratios for lifetime suicide ideation and want for help as suicide motive in unadjusted and multivariable-adjusted models

	Lifetime suicide ideation							
	Unadjusted			Fully fitted model*†				
	n	%	OR (95% CI)	n	%	OR (95% CI)		
Religious/spiritual factors	1,964	17.57						
Family background								
Other background	1,431	18.57	1.00					
Laestadian background	370	15.99	0.83 (0.74 - 0.95)	n=10,019		1.00		
Congregational affiliation¹				n=10,825		0.86 (0.72 - 1.03)		
All other affiliations	1,506	16.17	1.00			1.00		
Established Church	50	11.19	0.56 (0.49 - 0.64)			0.59 (0.40 - 0.87)		
Laestadian congregation	88	22.34	1.38 (1.08 - 1.75)			0.84 (0.55 - 1.29)		
Other religious congregation	92	25.21	1.62 (1.27 - 2.06)			0.89 (0.56 - 1.42)		
Non-religious denomination	250	26.82	1.84 (1.58 - 2.15)			0.97 (0.62 - 1.53)		
Religious attendance rate²				n=11,050		0.82 (0.55 - 1.23)		
Never or rarely (not past 6 months)	698	22.44	1.00					
Irregularly (1–6 times past 6 months)	860	15.98	0.66 (0.59 - 0.73)			0.82 (0.71 - 0.96)		
Regularly (once pr. month or more past 6 months)	388	15.17	0.62 (0.54 - 0.71)			0.74 (0.61 - 0.91)		
Religious importance and view of life				n=11,049				
I do not believe there is any god	411	21.94	1.00					
Unsure	373	17.97	0.78 (0.67 - 0.91)			1.04 (0.84 - 1.29)		
I believe there is a god, but religion is not so important in my everyday life	839	15.73	0.66 (0.58 - 0.76)			1.07 (0.88 - 1.31)		
Religious (I am a believer/confessing Christian)	331	18.73	0.82 (0.70 - 0.96)			1.28 (0.99 - 1.66)		
				Want for help as suicide motive†				
				Fully fitted model*†				
				n=8,314		n=247		
				Fully fitted model*†				
				n=291		n=292		
				Fully fitted model*†				
				n=304		n=306		
				Fully fitted model*†				
n	%	OR (95% CI)	n	%	OR (95% CI)	n	%	OR (95% CI)
447	4.00							
338	4.38	1.00	141	58.51	1.00	141	58.51	1.00
76	3.29	0.74 (0.58 - 0.96)	32	64.00	0.66 (0.47 - 0.93)	32	64.00	0.66 (0.47 - 0.93)
320	3.43	0.49 (0.39 - 0.62)	133	60.73	0.44 (0.21 - 0.93)	133	60.73	0.44 (0.21 - 0.93)
10	2.25	0.56 (0.30 - 1.05)	6	85.71	0.70 (0.29 - 1.70)	6	85.71	0.70 (0.29 - 1.70)
30	7.69	2.14 (1.45 - 3.14)	10	66.67	0.90 (0.38 - 2.14)	10	66.67	0.90 (0.38 - 2.14)
24	6.58	1.78 (1.16 - 2.73)	9	47.37	0.68 (0.30 - 1.54)	9	47.37	0.68 (0.30 - 1.54)
62	6.62	1.88 (1.42 - 2.48)	28	57.14	0.55 (0.26 - 1.14)	28	57.14	0.55 (0.26 - 1.14)
167	5.36	1.00	68	53.54	1.00	68	53.54	1.00
160	2.97	0.54 (0.43 - 0.67)	66	58.41	0.83 (0.62 - 1.11)	66	58.41	0.83 (0.62 - 1.11)
110	4.30	0.79 (0.62 - 1.02)	44	68.75	1.91 (1.28 (0.90 - 1.80)	44	68.75	1.91 (1.28 (0.90 - 1.80)
95	5.05	1.00	28	35.44	1.00	28	35.44	1.00
79	3.79	0.74 (0.55 - 1.01)	40	70.18	4.29 (2.06 - 8.90)	40	70.18	4.29 (2.06 - 8.90)
200	3.75	0.73 (0.57 - 0.94)	83	63.36	3.15 (1.76 - 5.64)	83	63.36	3.15 (1.76 - 5.64)
70	3.96	0.78 (0.57 - 1.06)	29	74.36	5.28 (2.25 - 12.41)	29	74.36	5.28 (2.25 - 12.41)

*Adjusted for ethnicity, age, sex, education level, total household income level, living arrangement, tobacco use, drinking frequency past year, self-rated health, anxiety and depression symptoms, and lifetime exposure to emotional, physical, or sexual violence. For simplicity, the control variables are not shown in the table. OR=odds ratio (95% confidence interval). †=mixed-effect logistic regression models where municipality is included as a random effect. The bold values are significant with p-value≤0.05. ‡=Among suicide attempters. §=Multiple affiliations possible. ¶At a church, congregation house, or religious building.

identity or background, as were those of religious self-ascription. The proportion of the Laestadian adherents reporting regular religious attendance (80.0%) was more than three times higher than that of the Established Church-affiliated (23.3%, not tabulated). Also, the percentage of self-ascribed religious among the Laestadians (77.0%) was almost five times higher than among the Established Church members (15.6%, not tabulated). Moreover, the Laestadians typically reported affiliation with the Established Church (80.6%, not tabulated). Established Church membership was more common among the participants of Laestadian family background (90.6%) than in those from non-Laestadian families (84.8%, $\chi^2[1] = 48.0$, $p < 0.001$, not tabulated).

Laestadianism was associated with some unfavourable sociodemographic factors, also after ethnic stratification. Compared with those of other family circumstances, the respondents with a Laestadian family background had a lower income and education level (mean 13.3 years vs. 13.6, $t[9,974] = 3.55$, $p < 0.001$, not tabulated). They also had a higher frequency of alcohol abstainers, but this finding was insignificant after stratification on personal Laestadian adherence (not tabulated). Moreover, violence exposure was more frequent in those of Laestadian family background. However, after ethnic stratification, this association – the effect size being small – was only found among persons of Sámi self-ascription ($\chi^2[1] = 5.4$, $p = 0.020$, not tabulated), indicating an ethnic confounder. Participants of Laestadian family background were also more often living alone, but the finding was insignificant after stratification by age groups (not tabulated). The Laestadian adherents also had a lower income and education level (mean 12.3 years vs. 13.5, $t[10,765] = 6.83$, $p < 0.001$, not tabulated), compared with the non-Laestadians. However, they were also more frequently abstainers from tobacco and alcohol (ESM Table S1). The Laestadians reported lower levels of SRH, but this was not significant after ethnic stratification (not tabulated).

Association between R/S factors and suicidal behaviour – unadjusted analyses

Among the respondents with a Laestadian family background, significantly fewer reported suicide ideation (16.0%) and attempts (3.3%) compared with those from non-Laestadian families (18.6% and 4.4%, respectively, Table 2). These findings also applied to the personal Laestadian adherents (11.2% suicide ideation) compared with the non-Laestadians (17.8% suicide ideation, not tabulated), yet the frequency of

attempters was insignificantly lower. Compared with non-membership, Established Church affiliation was inversely associated with suicide ideation and attempts (Table 2) and border-significantly associated with a 2.86 years older age at the first suicide attempt (23.86 years, $F[1,399] = 4.55$, $p = 0.034$, not tabulated). The regular and irregular attendees were less likely to report suicidal ideation (16.0% and 15.2%, respectively) and attempts (3.0% and 4.3%, respectively, with the latter number being only borderline significantly lower) compared with the non- or rare attendees (22.4% and 5.4%, respectively). The total number of suicide attempts was 1.17 attempts lower among irregular and regular attendees pooled together than non- or rare attendees (3.29 attempts, $F[1,411] = 8.91$, $p = 0.003$, not tabulated). The regular attendees were border-significantly more likely to report their attempts being calls for help, compared to non- or rare attendees (Table 2). Non-belief was significantly associated with suicide ideation – compared with all other categories – and suicide attempts – compared with being a not so devoted believer. Non-believing attempters also more rarely reported having made attempts that were calls for help. The debut age was higher among the not so devoted believers compared to the non-believers, but the difference disappeared completely after stratification by age groups. R/S was not associated with suicide motives being a wish to die or an unbearable situation (not tabulated).

Logistic regression models for suicide behaviour in multivariable-adjusted models

Both irregular (OR = 0.82, Table 2) and regular (OR = 0.74) religious attendance were significantly inversely associated with lifetime suicide ideation compared with non- or rare attendance in the adjusted model. Laestadian adherents were less apt to report suicide ideation in a model adjusting for religious and sociodemographic factors (OR = 0.57, 95% CI: 0.39–0.82, not tabulated). However, this beneficial association was rendered insignificant after adjustment for health-related variables. The respondents of Laestadian family background were significantly less likely to report lifetime suicide attempts (OR = 0.66, 95% CI 0.47–0.93, Table 2) than those from non-Laestadian families. Compared with non- or rare attendance, irregular religious attendance was inversely associated with suicide attempts in a model adjusting for R/S and sociodemographic factors (OR = 0.72, 95% CI: 0.56–0.93, not tabulated). However, this favourable association became insignificant after adjustment for health-related variables. Compared with non-membership, Established

Church affiliation was inversely associated with suicide ideation and attempts in the adjusted model (Table 2).

Due to the considerably small total number of suicide attempters, adjusting for multiple control variables increased the risk of over-adjustment bias when testing the association of R/S with the motives for suicide attempts. Thus, we made the regression analyses by a careful, stepwise introduction of each control variable into the models. In the unadjusted analyses, only one R/S factor was significantly associated with a suicide motive. This association and its significance level remained stable through all steps: Compared with the non-believers, the non-atheist suicide attempters were three to eight times more likely to report having made attempts that were calls for help (Table 2). There was a border significant association ($p = 0.045$) between being a regular attendee and having a want for help as a suicide motive in the unadjusted test. However, the significance disappeared in the very next regression step. Also, in the very final step, Established Church-affiliated and “other” affiliated had a border significant likelihood not to report having made attempts that were calls for help.

Discussion

Here, we studied the association of R/S factors with suicidal behaviour in a mixed Sámi-Norwegian adult sample using data from the population-based SAMINOR 2 Questionnaire Survey. The study applied multivariable-adjusted regression models controlling for religious, sociodemographic, and health-related factors. Following international research [2–5], we found that religious attendance was inversely associated with lifetime suicide ideation and fewer lifetime attempts. Laestadian family background was 34% less associated with suicide attempts than non-Laestadian family circumstances, whereas personal Laestadian adherence was not significantly associated with suicidal behaviour in the fully adjusted models. Both Sámi- and Laestadian-affiliated individuals more frequently reported religious self-ascription, attendance, and Established Church membership.

Laestadianism and other congregational affiliations, and suicidal behaviour

The Laestadian movement is a diverse phenomenon globally, within the Arctic region, and locally, and its significance on the personal level varies considerably. Still, this study applies crude categories like personal Laestadian adherence or non-adherence and Laestadian or non-Laestadian family background. However, up to the present, measures of Laestadian affiliation in

epidemiological studies have predominantly been pooled variables of personal and parental adherence [14] and even grandparents’ affiliation with the movement [20,24]. Our variables enable us to discriminate between the correlates of personal Laestadian adherence and Laestadian family background, including Laestadianism as a broader psycho-socio-cultural phenomenon. Also, the SAMINOR 2 study area included all three main Laestadian subgroups represented in Norway, the Alta, Lyngen, and Ofoten groups [37], named according to their geographical distribution. However, no theological analyses indicate differences in the application of norms related to suicidal behaviour among these groups. Nonetheless, using municipality as a random effect in the regression analyses, we could take unmeasured differences between the Laestadian subgroups into account.

The considerable correlation between Laestadianism and Sámi affiliation in this study sample necessitates a careful adjustment for ethnicity, especially considering the association between Sámi family background without Sámi self-ascription and Laestadian affiliation. The definition of Sámi ethnicity differs across the published studies, some demanding both Sámi language competence in the family *and* Sámi self-ascription [20,24], others requiring either Sámi parentage, family language competence, *or* self-ascription [14,17,18]. Eriksen et al. (2015, also SAMINOR 2 data) – finding higher exposure to violence among persons of Laestadian family background in their adjusted models – included only self-ascribed Sámi in their Sámi category, not considering the many respondents of apparent Sámi family background in their non-Sámi category. Thus, their finding and the earlier reported lower levels of SRH in Laestadians [23] might have been confounded by Sámi minority background. However, the association between Laestadianism and some disadvantageous socioeconomic factors in our sample – like lower income and education level – could not be explained by ethnicity alone.

Furthermore, the high frequencies of membership in the Established Church of Norway among the persons of Laestadian adherence and family background indicate no tendency of separation from the Established Church among the Laestadian-affiliated in this sample. On the contrary, the finding suggests that Laestadianism contributes to the social integration of Sámi and non-Sámi adherents into the wider Norwegian community. This acculturation strategy is a possible result of the movement’s implementation of the Lutheran “two kingdoms” doctrine: accepting secular laws and taking an active part in society except when doing so compromises one’s convictions [38,39].

We also found a beneficial relationship between Laestadian adherence and lifetime suicidal behaviour, and such relation seemed to be mediated or confounded by differences in health-related factors. This probably mediating effect was not explored by further analyses. However, in our sample, Laestadian adherence was inversely associated with suicidal risk factors, such as tobacco [21] and alcohol use [32]. The beneficial effects of Laestadianism on alcohol consumption have been studied earlier [14], and alcohol intoxication is known to be related to suicide attempts in Sámi adolescents in particular [40].

Furthermore, the respondents of Laestadian family background – independently of personal Laestadian adherence, religious participation, and belief – were significantly less likely to report suicide attempts. This finding – being independent of sociodemographic and health-related factors – might be due to psychosocial benefits connected to the movement's strong family and social networks [14,41,42]. Strong social and family ties and a firm belief are elements known to buffer risk factors, such as discrimination and acculturative stress in other R/S and ethnic minorities [43–45]. The kind of social support possibly associated with Laestadian family background – although not being assessed in the SAMINOR 2 Study – might represent benefits not gained by Laestadian congregational adherence alone.

Also, in contrast to the situation among indigenous Canadians, where Christian mission to a considerable degree destroyed the native culture and family structure and fostered distrust towards Western religions [9], the Laestadian version of Christianity established firm roots among the Sámi people by the ministry of their kin in their mother tongue [12]. The traditional Sámi *siida* societies' social and family ties were preserved and employed within the Laestadian communities [42].

However, this study did not adjust for other kinds of social support, except for living alone or with someone. For example, the social and family networks within the Sámi reindeer-herding communities [46] may protect against suicide risk in some contexts [16]. Also, the higher R/S measures in the Laestadian- and Sámi-affiliated individuals might be partly due to their relation with rural areas, typically associated with higher R/S involvement [13,29].

Finally, compared with non-membership, Established Church affiliation was significantly inversely associated with lifetime suicide ideation and attempts. However, this finding is probably due to its dominating status (86% of the sample reporting being members), representing the ethnic Norwegian majority population. In contrast, being a non-member of the Established Church in this context may indicate non-Sámi ethnic

or R/S minority status, social marginalisation, or less integration, circumstances typically associated with risk factors for suicidal behaviour. Also, Established Church-affiliation was not associated with high levels of R/S, only 16% being self-ascribed religious and 23% reporting regular religious attendance. Thus, any association between Established Church membership and mental health is probably not due to R/S factors.

Religious attendance and suicidal behaviour

Although the religious attendees reported fewer suicide attempts, the analyses suggest health-related circumstances might mediate a possible impact of religious attendance on lifetime suicide attempts. However, we did not test such mediation effect, but, for instance, non- or rare attendees more frequently reported risk factors, such as violence exposure and anxiety and depression symptoms [21]. Also, depressive symptoms are earlier found to partly mediate the protective effect of religious attendance on completed suicides [4]. The negative association between religious participation and lifetime suicide *ideation* in our sample was independent of sociodemographic, health-related, and other R/S factors. This finding follows a large amount of research exhibiting the protection of religious attendance against not only suicide ideation and attempts but also completed suicides [3–5]. Although this effect is found to be independent of social integration [6], a well-known protective factor against suicide attempts [6], the suicide-protective component of R/S seems to lie in its social dimensions. Same-faith social bonds are significantly more likely sources of help during challenging times [47]. Perceived and anticipated emotional support from one's fellowship of believers is the only aspect of R/S social support that is significantly associated with reduced suicidal behaviour [48]. The comfort of *knowing* about this available support strengthens one's mental health more than does the level and intensity of the contact [48].

Religious importance and view of life, and suicidal behaviour

We did not find any association between religious importance and belief and suicide ideation or attempts in our adjusted models. These findings align with previous evidence showing no protective effect of R/S importance or strength on completed suicides [3] or major depression [49] after controlling for social network or religious attendance, although it is inversely associated with the risk factors, such as alcohol abuse, in this population [14]. Suicidal behaviour was not

reported more frequently by the believers. On the contrary, in both the unadjusted and adjusted models, being a *non*-believing suicide attempter was strongly associated with *not* having called for help through an attempt. This phenomenon might represent the feeling of hopelessness and entrapment characterising the suicidal state – the vicious spiral and tunnelling of vision, where the attempter sees no alternative to the suicide [50,51]. The non-atheists, on the contrary, seem to have retained hope of relief and help [48] or R/S objections against suicide [7].

Strengths and limitations

The survey's considerably low response rate (27%) is an obvious limitation that might have caused a selection bias. It raises the question of our study's external validity and generalisability, and the results must be interpreted with caution [25]. Still, SAMINOR 2 is the numeric most extensive population-based study ($n = 11,222$) in mixed Sámi-Norwegian areas, tapping both R/S factors and suicidal behaviour and adding essential knowledge to the limited research field of R/S and mental health in this region. Although the cross-sectional study design cannot determine any causal relationships, our main findings are in line with international longitudinal studies on the topic. However, SAMINOR 2 lacks information about marital/relationship status, which is associated with less suicidal behaviour [6,9]. There may also be an under-reporting of suicidal behaviour among more devoted Christians, particularly Laestadians, due to moral objections [7], affecting the internal validity of our results. Further, this study focuses on the sociological dimensions of organised traditional and Pietist Lutheranism, leaving out the assessment of less organised and non-Christian Sámi spirituality.

Conclusion

Religious participation seems to be protective against suicidal behaviour among adults in Sámi-Norwegian areas. Despite Laestadianism's association with some disadvantageous socioeconomic factors, like lower income and education level, Laestadian family background and adherence seem to contribute to less suicidal behaviour in the mixed Sámi-Norwegian population.

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