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Religion and mental health in young adulthood – a register-based study on differences by religious affiliation in sickness absence due to mental disorders in Finland

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Abstract

Background: Religiosity and spirituality are known to be positively correlated with health. This is the first study to analyse the interrelation between religious denomination and sickness absence due to mental disorders using population register data with detailed ICD codes.

Methods: The follow-up study was based on the entire population born in Finland between 1984 and 1996 ($N = 794,476$). Each person was observed from age 20 over the period from 2004 to 2018. Cox proportional hazards models were applied to analyse the association between religious denomination and first-time sickness allowance receipts for any cause and mental disorder. Mental disorders were categorised as severe mental illness (F20–F31), depression (F32–F33), anxiety (F40–F48) and any other mental disorder (all other F codes). Men and women were analysed separately.

Results: The differences in sickness absence due to mental disorder were substantial between religious affiliations. Compared to members of the Evangelical Lutheran state church, the relative hazard for mental disorders among non-affiliated women was 1.34 (95% CI: 1.30–1.39), while that among women with other religions was 1.27 (1.19–1.35), after adjusting for own and parental characteristics. The corresponding numbers for men were 1.45 (1.39–1.50) and 1.42 (1.30–1.54), respectively. The gradient was larger for severe mental illness and depression than for anxiety and other mental disorders. For any cause of sickness absence, there was no difference between Lutherans, non-affiliated individuals and those with other religions.

Conclusions: Epidemiologists and public health practitioners should further examine the association between mental disorders and church membership using administrative registers.

WHAT IS ALREADY KNOWN ON THIS TOPIC

Religion and spirituality are positively associated with mental health.

Most studies are based on self-reported measures.

WHAT THIS STUDY ADDS

We use register data covering the total Finnish-born population.

We use religious denomination and ICD codes on sickness absence from population registers.

We study a secularised Nordic welfare state, in contrast to previous North American research.

We find that members of the state church have fewer mental health problems.

We find an association net of own and parental characteristics, including parental religion.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

Being non-affiliated to the Lutheran state church is a risk factor for mental disorders.

Introduction

Religiosity and spirituality are known to be associated with different health outcomes. Studies have found religiosity to be connected with better physical health in cancer patients [1], greater survival and lower incidence of cardiovascular disease [2]. Most research has investigated mental disorders [3]. Previous studies found higher levels of religiosity to be associated with lower depressive symptoms, while the results were mixed for anxiety and severe mental illnesses such as psychotic and bipolar disorders. Substance use and abuse tend to be inversely related to religiosity, as are suicide attempts and suicides [4].

Religiosity may affect mental health via behavioural, psychological, biological and social pathways [5]). Social mechanisms include social and emotional support [6]. Religiosity has been shown to relate positively to social capital through social structures and organisations [7], higher marital and family quality and increased union stability [8]. It also appears to be tied to a healthier lifestyle, including better diet [9,10], more physical activity (9, 11), better adherence to medical recommendations [11] and fewer health-damaging behaviours, such as smoking and substance abuse [9, 11, 12]. Many dimensions are likely to work through psychological mechanisms. Being religious was found to be connected with greater well-being related to individuals' views on the purpose and meaning of life [13]. Psychosocial resources in terms of optimism, mastery, self-esteem, gratitude and emotional regulation may mediate these associations [5]. Less is known about the role of biological mechanisms, although it has been argued that physiological processes in terms of cardiovascular, neuroendocrine and immune functions play a role [14]. Some studies have even suggested that religious persons have better stress regulation [15].

We take a unique approach to study the interrelation between religion and mental health. This paper is the first to use population register data to analyse how sickness absence due to mental disorders relates to affiliation with a religious denomination. Our setup is different to other studies in this field, which have been largely based on self-reported measures of religiosity and conducted in the North American context. Unlike most other countries, the longitudinal population register in Finland keeps track of each citizen's congregation, updated on a yearly basis. These data are linked to detailed information on sickness absence using ICD-10 codes.

By studying Finland, we also contribute by observing a secularised Nordic welfare state. At 75%, most Finland's native-born population are members of the Evangelical Lutheran state church, while approximately 20% are non-affiliated and some 2% belong to another congregation—predominantly the Orthodox state church. Most Lutherans have low religious practice—only one-third believe in God, and less than 10% regularly attend services [16]. However, self-rated religiosity appears to be substantial, as is belief in Christian tenets [17]. Finland is thus characterised as a country with high religious affiliation but low practice and high secularisation. The Evangelical Lutheran church is a state church by law, giving it rights related to marriage and taxation. Church members pay an income tax of about 1.5%.

From our data, we can observe the first-time sickness allowance receipts of young adults and distinguish the causes for them. All persons in the study population are eligible for sickness allowance, irrespective of labour market status or other socioeconomic or demographic characteristics. Receipt of sickness allowance can be considered an objective health measure because it is conditional on a physician's certificate with the main diagnosis for work incapacity. We focus on sickness absence due to mental disorders, which we separate into the

following four main groups: severe mental illness, depression, anxiety and any other mental disorders. The analyses are conducted separately for men and women.

We expect that those on sick leave due to mental disorders are more likely to be religiously non-affiliated than religiously affiliated persons, while differences in religion should be less marked for all-cause sickness absence.

Methods

We analysed all persons born in Finland between 1984 and 1996—meaning they were 20–34 years old during the study period from 2004 to 2018. Persons born abroad were excluded because they could not be effectively analysed [18]. All data preparation and analyses were conducted within Statistics Finland’s remote online access system, with permission number TK-52-694-18.

Sickness absence was measured from sickness allowance receipts. Each person is linked to data on sickness allowance receipts from the Social Insurance Institution of Finland (KELA), with diagnosis information available from 2004 onwards. All non-retired persons aged 16–67 years are eligible for sickness allowance, which compensates work incapacity. The benefit is paid after a waiting period of nine working days, and the amount relates to previous income. The first nine days are usually covered by the employer. A person becomes eligible for sickness allowance when a physician states there to be a need for sick leave lasting at least 12 calendar days. The maximum period of receipt is approximately one calendar year. If work incapacity continues thereafter, persons may apply for a disability pension, which was highly unusual in the young population under study. There is no national register of shorter sickness absence spells in Finland.

Finland’s population register keeps track of each person’s religious denomination, including individuals without any affiliation and members of non-state church denominations. The information is collected for everyone and updated on a yearly basis, meaning that a person can change religious category over time. Our raw data contained information on approximately 50 different denominations, which we aggregated into the following three groups: (1) members of the Evangelical Lutheran state church (77%), (2) non-affiliated persons (21%) and (3) members other denominations (2%).

To analyse the association between religious denomination and sickness absence, we applied Cox proportional hazards models on data split by each calendar year. We ran models where first-time sickness absence receipts due to all causes and mental disorders, respectively, were the failure events. We also ran separate models by main type of mental disorder—namely, (a) severe mental illness (F20–F31), (b) depression (F32–F33), (c) anxiety (F40–F48) and (d) any other mental disorder (all other F-codes). To observe first-time sickness absence, we began by observing all persons from age 20 (see supplementary material). Right-censoring occurred at death, emigration, end of the observation period or sickness allowance receipt due to a cause other than that studied in the model. We ran separate models for men and women, since the sickness absence rate and diagnoses differ between sexes [19].

In focus was the hazard of sickness absence by religious denomination. First, we ran regressions with no control variables (Model 1); second, we adjusted for observation year, educational level, student status (whether enrolled in education), family situation, mother tongue, region of residence, childhood family situation (at age 15), mother’s educational

level, father’s educational level, mother’s labour market status (at age 15), father’s labour market status (at age 15), mother’s income quintile (at age 15), father’s income quintile (at age 15) and whether the family lived in an owner-occupied dwelling (at age 15) (Model 2); and third, we additionally adjusted for whether an individual’s religious affiliation was the same as that of their mother and/or father (Model 3). The mother and father’s religious affiliation was measured when the individual was aged 15. Consequently, this variable reflected whether they had switched religious affiliation from that of their parents. Mother tongue, parental education and the variables measured at age 15 were time invariant. All other variables were time varying and referred to the situation at the beginning of each calendar year.

The variables are described in supplementary material. There were 405,983 men and 388,493 women in the study population. The number of first-time sickness allowance recipients for any cause was 101,908 among men and 131,190 among women, while for mental disorders, the number was 23,549 among men and 38,446 among women. For each main type of mental disorder, except severe mental illness, men were less likely than women to receive sickness allowance. Incidence rates by each characteristic are found in the supplementary material.

The estimates are presented as hazard ratios (HRs) with 95% confidence intervals (CIs). Lutherans constituted the reference category throughout the analysis. Hazards by religious affiliation were proportional. All estimations were carried out with R version 3.6.3.

Results

Tables 1A and 1B summarise the results for all-cause sickness absence. Among women, the hazard was slightly higher among non-affiliated individuals than Lutherans when no control variables were included (HR 1.01, CI 1.00–1.03). In the fully adjusted model, non-affiliated women and women with other religions were in par with Lutherans (1.01, CI 0.99–1.03). Among men, there remained a slight difference in hazard between non-affiliated individuals and Lutherans when all control variables were adjusted for (HR 1.02, CI 1.00–1.04), while men with other religions were at the same level as Lutherans (HR 1.01, CI 0.96–1.05).

(Tables 1A and 1B about here)

Table 1A: Hazard ratios for all-cause sickness absence by religious affiliation for women.

	Model 1		Model 2		Model 3	
	HR	95% CI	HR	95% CI	HR	95% CI
Lutheran	1		1		1	
Non-affiliated	1.01	1.00-1.03	1.06	1.04-1.08	1.01	0.99-1.03
Other religion	1.00	0.96-1.04	1.00	0.97-1.04	0.98	0.94-1.02

Model 1: Adjusted for no control variables.

Model 2: Adjusted for all control variables except parental religion.

Model 3: Adjusted for all control variables including parental religion.

Table 1B: Hazard ratios for all-cause sickness absence by religious affiliation for men.

	Model 1		Model 2		Model 3	
	HR	95% CI	HR	95% CI	HR	95% CI
Lutheran	1		1		1	
Non-affiliated	1.06	1.05-1.08	1.07	1.05-1.08	1.02	1.00-1.04
Other religion	1.02	0.98-1.07	1.03	0.98-1.08	1.01	0.96-1.05

Model 1: Adjusted for no control variables.

Model 2: Adjusted for all control variables except parental religion.

Model 3: Adjusted for all control variables including parental religion.

Tables 2 and 3 summarise the results for sickness absence due to mental disorders. The hazard for any mental disorder (all F diagnoses) was much higher for non-affiliated persons and with other religions than for Lutherans (first panel, Model 1). The socioeconomic and demographic characteristics of young adults and their parents explained less than one-third of this gradient (Model 2). When the variable for mother and father's religion was included, the differences were further reduced but remained considerable (Model 3). For non-affiliated women, the risk was 34% higher (HR 1.34, CI 1.30-1.39) than that for Lutherans, and for women with other religions, it was 27% higher (HR 1.27, CI 1.19–1.35). For non-affiliated men, the hazard was 45% higher (HR 1.45, CI 1.39–1.50) than for Lutherans, and for men with other religions, it was 42% higher (HR 1.42, CI 1.30–1.54).

(Tables 2 and 3 about here)

Table 2. Hazard ratios for sickness absence from mental disorders by religious affiliation for women.

	Model 1		Model 2		Model 3	
	HR	95% CI	HR	95% CI	HR	95% CI
All mental disorders						
Lutheran	1		1		1	
Non-affiliated	1.64	1.60-1.68	1.46	1.43-1.50	1.34	1.30-1.39
Other religion	1.40	1.31-1.49	1.33	1.25-1.42	1.27	1.19-1.35
(a) Severe mental illness						
Lutheran	1		1		1	
Non-affiliated	2.20	2.02-2.39	1.86	1.71-2.03	1.75	1.56-1.95
Other religion	1.80	1.44-2.25	1.62	1.29-2.03	1.53	1.21-1.93
(b) Depression						
Lutheran	1		1		1	
Non-affiliated	1.82	1.77-1.88	1.61	1.56-1.66	1.43	1.37-1.49
Other religion	1.54	1.41-1.67	1.46	1.34-1.59	1.37	1.25-1.49
(c) Anxiety						
Lutheran	1		1		1	
Non-affiliated	1.32	1.27-1.38	1.21	1.16-1.26	1.15	1.09-1.21
Other religion	1.18	1.05-1.32	1.14	1.02-1.28	1.11	0.99-1.25
(d) Other mental disorder						
Lutheran	1		1		1	
Non-affiliated	1.45	1.34-1.58	1.33	1.22-1.44	1.29	1.16-1.43
Other religion	1.15	0.91-1.45	1.12	0.89-1.42	1.10	0.87-1.40

Model 1: Adjusted for no control variables.

Model 2: Adjusted for all control variables except parental religion.

Model 3: Adjusted for all control variables including parental religion.

Table 3. Hazard ratios for sickness absence from mental disorders by religious affiliation for men.

	Model 1		Model 2		Model 3	
	HR	95% CI	HR	95% CI	HR	95% CI
All mental disorders						
Lutheran	1		1		1	
Non-affiliated	1.79	1.74-1.84	1.61	1.57-1.66	1.45	1.39-1.50
Other religion	1.59	1.47-1.73	1.49	1.38-1.62	1.42	1.30-1.54
(a) Severe mental illness						

Lutheran	1		1		1	
Non-affiliated	1.93	1.80-2.06	1.67	1.56-1.79	1.57	1.43-1.71
Other religion	2.06	1.72-2.46	1.85	1.55-2.22	1.76	1.47-2.12
(b) Depression						
Lutheran	1		1		1	
Non-affiliated	2.05	1.97-2.14	1.83	1.76-1.91	1.61	1.53-1.71
Other religion	1.63	1.44-1.84	1.54	1.36-1.74	1.46	1.29-1.66
(c) Anxiety						
Lutheran	1		1		1	
Non-affiliated	1.40	1.33-1.48	1.31	1.24-1.39	1.18	1.09-1.27
Other religion	1.39	1.19-1.63	1.32	1.13-1.55	1.25	1.07-1.47
(d) Other mental disorder						
Lutheran	1		1		1	
Non-affiliated	1.61	1.48-1.76	1.46	1.34-1.60	1.30	1.15-1.46
Other religion	1.28	0.96-1.69	1.18	0.89-1.57	1.12	0.84-1.49

Model 1: Adjusted for no control variables.

Model 2: Adjusted for all control variables except parental religion.

Model 3: Adjusted for all control variables including parental religion.

Tables 2 and 3 summarise the results when different main causes of mental disorders were distinguished. Among women, the hazard for severe mental illness was more than twice higher for non-affiliated individuals than for Lutherans in the unadjusted model (HR 2.20, CI 2.02–2.39). After adjusting for all control variables, it was 75% higher (HR 1.75, CI 1.56–1.95). Among men, the difference was slightly less emphasised—that is, 93% higher in the unadjusted model (HR 1.93, CI 1.80–2.06) and 57% higher in the fully adjusted one (HR 1.57, CI 1.43–1.71). Among men, those with other religions had the greatest hazard for severe mental illness—that is, 76% higher than Lutherans (HR 1.76, CI 1.47–2.12) when all control variables were accounted for. Women with other religions had a hazard below those who were non-affiliated, but it was 53% higher than that of Lutherans (HR 1.53, CI 1.21–1.93).

The association between religious affiliation and depression was also substantial. Differences by religious affiliation were slightly less emphasised than for severe mental illness among women, but more emphasised among men. Among women, the hazard of depression for non-affiliated persons was almost twice higher than for Lutherans (HR 1.82, CI 1.77–1.88). After adjusting for all control variables, it was 43% cent higher (HR 1.43, CI 1.37–1.49). Non-affiliated men's had a hazard of depression that was more than twice higher than that of Lutherans (HR 2.05, CI 1.97–2.14). After adjusting for all control variables, it was still over 60% higher (HR 1.61, CI 1.53–1.71). Among women and men with other religion, the hazard

was lower than among those non-affiliated, but notably higher than among Lutherans (women: HR 1.37, CI 1.25–1.49; men: HR 1.46, CI 1.29–1.66).

Associations between religious affiliation and anxiety were less marked than for severe mental illness and depression. The hazard of anxiety among non-affiliated women was 32% higher than that among Lutherans (HR 1.32, CI 1.27–1.38). After adjusting for all controls, it was 15% higher (HR 1.15, CI 1.09–1.21). Among men, the pattern was similar, or 40% higher in the unadjusted model (HR 1.40, CI 1.33–1.48) and 18% higher in the fully adjusted one (HR 1.18, CI 1.09–1.27). People with other religions were at approximately the same level as non-affiliated persons when all control variables had been adjusted for—or an 11% higher hazard among women than Lutherans (HR 1.11, CI 0.99–1.25) and 25% higher among men (HR 1.25, CI 1.07–1.47).

Associations between religious affiliation and other mental disorders were less marked than for severe mental illness and depression and roughly similar for anxiety. Among non-affiliated women, the hazard was 29% higher than that of Lutherans when all control variables had been adjusted for (HR 1.29, CI 1.16–1.43), and that for women with other religions was 10% higher (HR 1.10, CI 0.87–1.40). The corresponding hazard ratios for men were 1.30 (CI 1.15–1.56) and 1.12 (CI 0.84–1.49), respectively.

Educational level, family situation and parents' religion were the control variables that contributed most in reducing the differentials in mental disorders across religious affiliations. We also added a proxy for any parental mental health problems within our study window (supplementary material). The inclusion of that variable only marginally affected the hazard ratios by religious affiliation.

Discussion

This is the first study using population register data to analyse how sickness absence due to mental disorders relates to church membership. We found that while the connection between all-cause sickness absence and religious affiliation was weak, the association with mental disorders was substantial. We also distinguished severe mental illness, depression, anxiety and other mental disorders. The hazard of severe mental illness and depression was approximately twice higher for non-affiliated persons than for Lutherans, and only about 40% of this gradient could be attributed to socioeconomic and demographic characteristics and parental religion. For anxiety and other mental disorders, differentials by religious denomination were less marked. Non-affiliated persons still had a 15–30% higher adjusted hazard than Lutherans, and people with other religions a 10–25% higher adjusted hazard.

For the gradient between non-affiliated persons and Lutherans, our findings are in line with previous research. In the US, there was found to be a positive correlation between religiosity and the absence of mental health problems [20–24], and in Germany and neighbouring countries, similar results have been obtained [25].

Differences between non-affiliated persons and Lutherans were larger for severe mental illness and depression than for anxiety and other mental disorders. These findings show the interrelation between religious affiliation and mental disorders to be multifaceted. Previous research has suggested that religious beliefs are positively associated with psychotic symptoms and disorders but negatively associated with bipolar disorder [26]. For patients with schizophrenia, religious beliefs may reduce negative symptoms [27] but also contribute

to delusions [28]. Religiosity may also promote treatment motivation and engagement [29] and coping with illness in the case of psychotic disorders [30].

Non-affiliated persons were found more likely to suffer from depression. This supports a number of studies suggesting that religiosity is associated with lower levels of depression and faster recovery from depression and that religious interventions may reduce depressive symptoms [31]. Most studies were from the US, but European studies have also supported the notion of a positive interrelation between religiosity and the absence of mental problems [32, 33].

We observed notably smaller differences between non-affiliated individuals and Lutherans when anxiety, rather than severe mental illness and depression, was studied. Current evidence from other studies points towards the protective role of religion against anxiety, but the literature is not unanimous, and causality may run in both directions [31].

We studied Finland, which is a secularised and religiously homogenous Nordic welfare state. In such a context, one might suppose that religious affiliation and mental disorders are not strongly correlated. This is not what we found, however. For both women and men, religious affiliation was an important marker for mental health—net of parental religion and socioeconomic and demographic characteristics during childhood and young adulthood. We believe our findings can be generalised to many other OECD countries that have, or have recently had, a dominant church to which the mainstream, native population belongs with similar fairly low levels of religious participation.

The high number of nominal members of the Lutheran church relates to its strong ceremonial role in terms of baptism, marriage, funerals and charity work [34]. Traditions such as Christmas holidays constitute another reason. The Lutheran church also has a central role when family and societal matters are discussed. Church membership may therefore relate to social cohesion, rather than religiosity per se [17]. The reason why non-affiliated persons and those with other religions are relatively more likely to take sickness leave due to mental disorders may thus be due to lower levels of social integration into mainstream society.

Strengths and limitations

Caution is needed when forming conclusions about the mechanisms that link religiosity and mental disorders. Many previous studies suffered from data issues related to small sample sizes, lack of follow-up and substantial heterogeneity in the study population [35]. The strengths of this study are the extensive datasets used, which cover the entire population of young adults, and the information on congregation and sickness absence with the ICD-10 codes being from register data. Mental health and religion are sensitive issues that may be left unanswered in surveys and lead to biased results. With register data, we avoided selective reporting, drop-out and memory flaws. Our measures for religion and mental health were objective, and many problems of defining the concepts were therefore avoided.

In terms of limitations, our measure for religion accounted only for individuals' congregations without any details on religiosity, attendance at religious services or religious beliefs. The register data also lacked information on health behaviours or personality features other than those reflected by the control variables. Also, we did not explore directions of causality between mental disorders and entries to or exits from the church. Future studies could therefore explore the underlying mechanisms behind the observed associations.

Conclusion

In Finland, members of the Lutheran state church are less likely to be on sickness leave due to mental disorders than non-affiliated individuals and members of other religions.

Ethics statement

Since all data were register based and anonymised, there was no need to seek separate ethical approval for this study. Neither was there a need to obtain consent from the study group, since the data were analysed anonymously. All data access, data preparation and analyses were performed within Statistics Finland's remote access system Fiona, with contract number TK-52-694-18. According to the Statistics Act in Finland, Statistics Finland decides independently on all licenses for use of its basic data, and its guidelines for data handling were followed. All data were fully anonymised before we accessed them.

Data Availability Statement

Other researchers can obtain the data used in the study from Statistics Finland and the Social Insurance Institution of Finland. Service fees apply.

Competing interests

There are no competing interests for any author.

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