



## Regular Article

## Is the degree of religiosity related to community belonging and trust in society? A cross-sectional study among Muslims in Norway

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## ABSTRACT

**Introduction:** It is unclear if the degree of religiosity within Muslim minority groups causes health inequality because of poor community belonging and lack of trust in society. We aimed to investigate the association of the degree of Muslim religiosity with community belonging and trust in society, including general trust and trust in political authorities, political power, media and monarchy.

**Methods:** This study had a cross-sectional design, including a random sample of 1129 men and women aged 18–85 years, originating from Muslim countries and currently living in Norway. Data were retrieved from the Norwegian Central Population Register.

**Results:** In logistic regression analyses, adjusted for confounders, the degree of Muslim religiosity was not associated with general trust (crude odds ratio [OR] = 1.00, 95% confidence interval [CI]: 0.91–1.10;  $p = 0.90$ ) or trust in political authorities (OR = 0.96, 95% CI: 0.87–1.06;  $p = 0.40$ ) and monarchy (OR = 0.92, 95% CI: 0.84–1.00;  $p = 0.08$ ). However, the degree of Muslim religiosity showed a negative association with trust in political power (OR = 0.91, 95% CI 0.83–1.00;  $p = 0.04$ ) and media (OR = 0.80, 95% CI: 0.73–0.87;  $p < 0.01$ ), whereas there was a positive association with community belonging (OR = 1.11, 95% CI: 1.01–1.21;  $p = 0.03$ ).

**Conclusion:** A higher degree of Muslim religiosity, compared with lower, was not a barrier to trust in society or community belonging among Muslims in Norway. Hence, these findings support the use of culturally sensitive health interventions involving Muslim religiosity in reaching out to Muslim communities. Considering the negative association of the degree of Muslim religiosity with trust in political power and media, the involvement of politicians and political symbols or the use of traditional media in public health communication with this minority group should be pursued with caution.

## 1. Introduction

Despite the healthy migrant effect, immigrants and their descendants are especially vulnerable to health disparities due to changes in societal factors in the process of migration and integration (Chang, 2019; Guillot et al., 2019). Trust in society and community belonging are established and modified in the process of migration and integration at different levels and are important social determinants of health (SDH) associated with mental health, self-rated health, health behaviour and life satisfaction (Campbell, 2020; Chapman & Santos-Lozada, 2020; Elgar et al., 2011; Lindstrom & Mohseni, 2009; Salami et al., 2019). In addition,

religion has also been defined as a social determinant of health (Chen & VanderWeele, 2018; Ishaq et al., 2021b; Kawachi, 2020).

The contribution to health disparities among individuals with immigrant backgrounds due to the complexities of variations in trust in society, community belonging and religiosity is an issue in need of scientific evidence. This is because current global crises, such as international wars, natural disasters and health crises, including the recent coronavirus disease 2019 (Covid-19) pandemic, indicate increasing health inequalities and increased numbers of global migrants with Muslim backgrounds. During the Covid-19 pandemic, when socioeconomic factors could not to explain the whole overrepresentation of

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adverse Covid-19 outcomes in epidemiological studies among Muslims in Norway (Indseth et al., 2021; Ishaq et al., 2021a; Labberton et al., 2022), factors related to Muslim identity were emphasized as a cause of the overrepresentation. A main argument was that the Islamic faith caused a lack of trust and willingness to belong to or identify with the Norwegian society, which led to less compliance with public health recommendations, explaining the overrepresentation. This explanation was used by different stakeholders, including politicians and some health officials (Brandvold, 2021; Ishaq, Østby, & Johannesssen, 2021; Sørheim, 2021; Vårt Land, 2020).

This concern was approached as a national challenge, although Muslims in Norway are estimated to constitute 4 per cent of the population. However, as the majority of Muslims originate from non-Western countries, immigrants are considered interchangeable with Muslims in Norway (Østby & Dalgard, 2017).

## 2. Literature review

The available evidence on the association between religiosity and trust in society is dominated by Christian samples and is equivocal, reporting positive, negative or no association between religion and trust (Dingemans & van Ingen, 2015; Hsiung & Djupe, 2019; Manglos-Weber, 2017; Schnabel & Groetsch, 2014; Valente & Okulicz-Kozaryn, 2021). Studies on religiosity and trust in society among Muslims in the diaspora are especially scarce (Doerschler & Irving Jackson, 2012; Maxwell, 2010; Traunmüller, 2011). Regarding religiosity and community belonging, significant literature exists, including several surveys, about the level of identification with their country of residence among Muslims. However, these findings are conflicting because some studies report low and some high identification or belonging to the country of residence (Fleischmann et al., 2018; Stockemer & Moreau, 2021). Moreover, few studies have assessed how Muslim religiosity is associated with community belonging, because most studies have investigated community belonging in relation to origin from a Muslim country (Fleischmann et al., 2018).

Trust in society and community belonging are indicators of social cohesion, also called the concept of social capital (Lindstrom & Mohseni, 2009; Miller et al., 2020; Salami et al., 2019). Social capital affects health both horizontally, i.e. through social ties between individuals, and vertically, i.e. through interactions between individuals and societal institutions (Lindstrom & Mohseni, 2009). Thus, it will be useful to operationalize trust in society through the categories of general and institutional trust. Institutional trust is further measured through trust in political power, political authorities, media and monarchy.

To our knowledge, no quantitative study has investigated how the degree of religiosity is related to community belonging and trust in society among Muslims in Norway.

## 3. Objectives

The objectives of the present study of 18–85-year-old Muslims in Norway were.

- 1) To investigate the association between the degree of Muslim religiosity and community belonging.
- 2) To investigate the association between the degree of Muslim religiosity and trust in society, including general trust and trust in political authorities, political power, media and monarchy.

Accordingly, the research questions of this study were: Do Muslims with high degree of religiosity report a weaker sense of belonging to the community than less religious Muslims? Do Muslims with high degree of religiosity have less trust in society (i.e. general trust and trust in political authorities, political power, media and monarchy)?

## 4. Theoretical framework

The framework of SDH focuses on the impact of social factors on health beyond the exclusive focus on individual-level factors. (Abubakar et al., 2016; Solar & Irwin, 2010).

Religiosity, similar to race, accounts for structural determinants of health. Community belonging and trust are described as the main features of social cohesion within the framework of SDH and are referred to as social ties and attachment to the surrounding society, implying access to important resources that affect health (Abubakar et al., 2016; Campbell, 2020; Miller et al., 2020; Solar & Irwin, 2010). Community belonging and trust, defined as social cohesion, are linked to both structural determinants of health as well as intermediary determinants of health (Solar & Irwin, 2010). Accordingly, the present study investigated a segmental pathway between Muslim religiosity and community belonging and trust to investigate the potential contribution of Muslim religiosity to health disparities through upstream SDH. A full pathway is not examined due to the lack of health variables in the present dataset.

## 5. Material and methods

### 5.1. Study design and population

The present study included a random sample drawn from the Norwegian Central Population Register. The completeness of this register is high because every person with a legal right to stay in Norway needs to be registered with a unique personal identification number (PIN code) in this register (Sæbo, 2019; Vassenden, 2015). The PIN code can be used for linking a wide range of official registers for statistical and scientific purposes.

The sample consisted of respondents with backgrounds from eight Muslim-majority countries, from which most Muslims in Norway originate: Somalia, Pakistan, Iraq, Iran, Turkey, Afghanistan, Bosnia-Herzegovina and Morocco.

Because populations originating from some Muslim-majority countries have lower response rates than others, we used stratified sampling to account for the lowest response rates. We aimed at a final sample proportional to the actual size of the immigrant population from the selected countries.

The sample was controlled for valid addresses before the postal dispatch of the survey to 9849 respondents. Despite this, 1050 surveys were returned due to wrong addresses, resulting in 8799 individuals being invited to participate. However, these returns were labelled as non-responders. The final sample included 1129 participants who completed the interview, resulting in a response rate of 11.5% (Fig. 1). Finally, individuals who did not define themselves as Muslims when the interview was conducted were excluded, resulting in a sample size of 845 Muslims. Muslim religiosity is defined as the exposure variable herein. Origin from a Muslim country is considered as a conceptual affiliation with Islam and not exposure to Muslim religiosity.

Data were collected from autumn 2015 until spring 2016. The fieldwork assignment in the present study was provided to Kantar Gallup. To minimize the interviewer effect, especially due to sensitive issues, the survey was conducted by post. However, information about the possibility of answering the survey digitally was provided. Questions from established and validated international surveys, such as the European Values Survey, were used as templates, and translated (European Value Study, 2017; Halman et al., 2022; Johnson & Mislin, 2012).

### 5.2. Variables

#### 5.2.1. Outcome variables

Community belonging was measured by asking respondents if they wanted to be accepted as Norwegians. The answer 'agree' was assigned a score of 1.

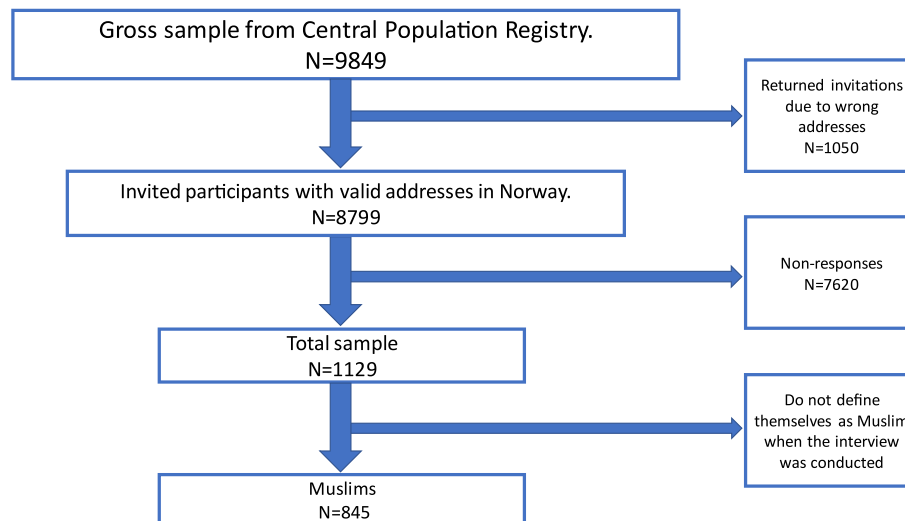


Fig. 1. Overview of the sample.

General trust was measured through the statement ‘Do you think that most people are trustworthy?’. If the respondents agreed, they were defined as having general trust and were assigned a score of 1.

Institutional trust was measured through four variables in the present study.

- 1) Trust in the national parliament and the Norwegian government was measured on a scale of 1–5. High trust was assigned the highest score 5. All the items measuring institutional trust in this study were coded this way. There were separate questions for each of the two institutions, but in our analysis, these two items were operationalized into one variable, which was named political power. A sum value 8–10 was coded as trust (value 1). The Cronbach’s  $\alpha$  value was found to be 0.74.
- 2) Trust in the police, Norwegian Intelligence Service (PST) and court of law were also measured on a scale of 1–5. There was a separate question for each of these institutions, but in our analysis, these three items were operationalized into one variable and named political authorities in Norway. A sum value 12–15 was coded as trust (value 1). The Cronbach’s  $\alpha$  value was 0.79.
- 3) Trust in the media was measured using a separate item on a scale of 1–5. Values 4 and 5 were coded as trust.
- 4) Trust in the monarchy was measured and coded similarly to trust in the media.

### 5.2.2. Exposure variable

**Muslim religiosity:** Religion is considered multidimensional such that different concepts of religion are recommended to be considered in empirical research (Woodhead, 2011). Accordingly, a scale of Muslim religiosity was computed with the following variables reflecting both Islamic behaviour and identity. To make the interpretation of the analysis more convenient, the variables were dichotomised.

- 1) Respondents who said they intended to pray or did pray every day or sometimes a week were assigned a score of 1.
- 2) Respondents who answered that they intended or aimed to fast during Ramadan every year were assigned a score of 1.
- 3) To measure the importance of Islam, the following statement was provided to the respondents: ‘Islam is an important part of my daily life’. The answer ‘agree’ was assigned a score of 1.
- 4) Respondents were provided with the statement, ‘Islam is the primary marker of my identity’. The answer ‘agree’ was assigned a score of 1.

- 5) Respondents were asked how often they attended the mosque. Mosque attendance at least once the previous year was assigned a score of 1.

These items were aggregated into a total sum score. Accordingly, the maximum score on this scale was 5 indicating the highest degree of religiosity.

### 5.3. Ethics

The Norwegian Data Protection Authority granted a concession for the present study, and the Norwegian Centre for Research Data approved the study. The participants were provided a detailed information letter about the study. They were carefully informed that the participation was voluntary, and consent was based on the submission of the questionnaire. The Norwegian Central Population Register is subjected to the Norwegian Tax Administration. The information letter and the questionnaire was sent to these authorities prior to the fieldwork for approval.

### 5.4. Statistical methods

Descriptive data were reported in per cent with a 95% confidence interval (CI), except for age, which was reported as a mean with 95% CI. In logistic regression analyses, crude odds ratio (OR) with 95% CI was estimated for the bivariable association between selected covariates and the following dependent variables: community belonging, general trust and trust in political power, political authorities, media and monarchy.

For the multivariable analyses, we tested assumptions for alternative regression models and decided to use the logistic regression model to estimate the association of Muslim religiosity with community belonging, general trust and trust in political power, political authorities, media and monarchy, presenting crude and adjusted ORs with 95% CI. We identified confounders based on a Direct acyclic graph (DAG) (Supplementary Fig. 4) (Textor et al., 2017). Accordingly, the analyses were adjusted for the following confounders: age, gender, nativity, time of residence in Norway, education and marginalization as Muslim.

The interaction effects of gender, age and nativity with religiosity were investigated by multiple logistic regression analysis. In these analysis, the interaction of religiosity with gender, age and nativity were applied as independent variables.

The significance level was set to a  $p$ -value  $\leq 0.05$  or 95% CI.

Missing values were generally few in the total sample and <9% in the analysis.

The SPSS program version 29 was used to conduct the analyses.

Considering the response rate of 11.5%, an analysis of the sample representativity was conducted by comparing participants from the gross sample who were invited to participate in the survey and those who answered the survey (Supplementary Tables 3, 4, 5 and 6). Accordingly, sample weighting was conducted for gender and country of origin.

### 6. Results

Table 1, Figs. 2 and 3 display the descriptive statistics.

The associations of religiosity with community belonging, general trust and trust in political power, political authorities, media and monarchy are presented in Table 2. A positive association between the degree of Muslim religiosity and community belonging (OR = 1.11, 95% CI: 1.01–1.21;  $p = 0.03$ ) was found after adjustment for confounders (age, gender, nativity, time of residence in Norway, education and marginalization as Muslims). No association between the degree of Muslim religiosity and general trust was found (OR = 1.00, 95% CI:

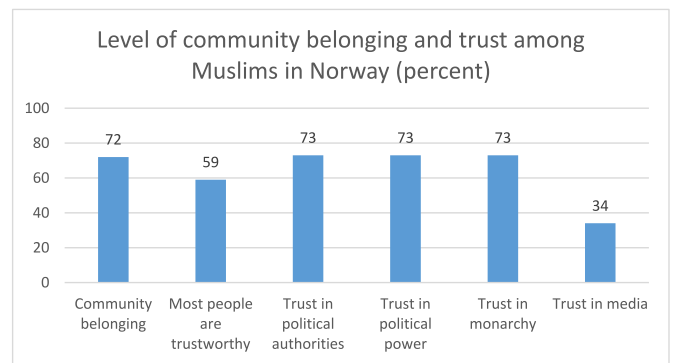


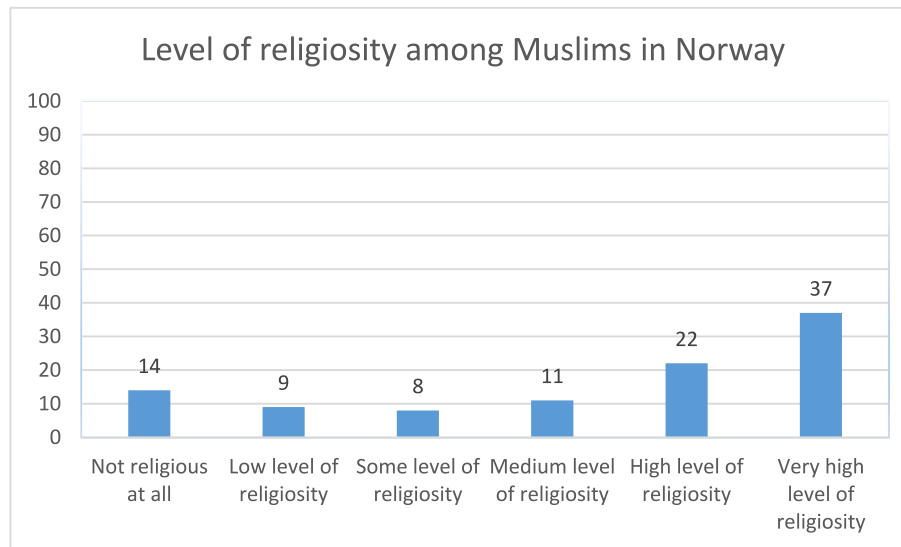
Fig. 2. Level of community belonging and trust in society among Muslims in Norway in percent.

Table 1

Description of sociodemographic factors, muslim religiosity, trust and community belonging, by sex and in total. The data are presented in numbers (n) and percent with 95% CI, except age, which is presented as mean.

	n	Women Percent (95% CI)	n	Men Percent (95% CI)	N <sup>a</sup>	Total Percent (95% CI)
<b>Sex</b>	400	48 (44,4–51,0)	437	52 (49,0–55,6)	837	
<b>Age (mean)</b>	394	36 (35,1–38,0)	432	40 (38,8–41,5)	830	38 (37,4–39,5)
<b>Time of residence in Norway</b>	399		433		836	
Born in Norway	99	25 (20,5–29,0)	60	14 (10,7–17,1)	159	19 (16,5–21,7)
More than 19 years	129	32 (28,1–36,9)	165	38 (33,6–42,7)	296	35 (32,3–38,6)
10–19 years	128	32 (27,4–36,8)	153	35 (30,7–39,8)	282	34 (30,7–37,0)
5–9	36	9 (6,2–11,8)	52	12 (8,9–15,2)	89	10,6 (8,6–12,8)
Until 5 years	7	2 (0,7–3,2)	3	1 (0,0–1,6)	10	1 (0,5–1,9)
<b>Education</b>	392		427		823	
Primary and lower secondary school	87	22 (18,0–26,6)	87	20 (16,6–24,5)	174	21 (18,3–23,9)
Upper secondary school	154	39 (34,4–44,3)	161	38 (33,0–42,4)	318	39 (35,5–42,0)
University education or university college education	151	39 (33,4–43,0)	179	42 (37,4–46,8)	331	40 (37,1–43,5)
<b>Prayers</b>	377		405		785	
Pray or aim to pray daily or several times weekly	221	59 (53,7–63,4)	215	53 (48,1–57,9)	437	56 (52,1–59,1)
Pray or aim to pray weekly (but not daily), ex: Friday prayer	43	11 (8,1–14,9)	36	14 (10,6–17,5)	99	13 (10,4–14,9)
Pray seldom or never	113	30 (25,6–34,7)	132	33 (28,4–37,5)	249	32 (28,8–35,2)
<b>Fasting during Ramadan</b>	378		406		787	
I do or intend to fast every Ramadan	328	87 (83,3–89,9)	331	82 (77,7–85,1)	662	84 (81,6–86,7)
I do not care about fasting	50	13 (10,1–16,7)	75	19 (14,9–22,3)	125	16 (13,3–18,4)
<b>Religious attendance</b>	384		405		809	
Every day, or once or several times a week	31	8 (5,5–10,8)	215	53 (48,1–57,9)	173	21 (18,8–24,4)
Once or several times a month	51	13 (10,1–16,7)	56	14 (10,6–17,5)	122	15 (12,7–17,6)
Once or several times a year, or seldom or never	302	78 (74,7–82,7)	134	33 (28,8–37,5)	514	64 (60,1–66,6)
<b>Islam is an important part of my daily life</b>	396		431		830	
Agree	312	79 (74,9–83,0)	321	75 (70,3–78,3)	634	76 (73,6–79,2)
Disagree	84	21 (17,0–25,0)	110	25 (21,7–25,5)	196	24 (20,8–26,4)
<b>The Muslim identity is the most important identity for me</b>	394		427		825	
Agree	247	63 (57,6–67,6)	247	58 (53,1–62,4)	495	60 (56,8–63,3)
Disagree	147	37 (32,4–42,4)	180	42 (37,6–46,9)	330	40 (36,7–43,2)
<b>Do you think that most people are trustworthy?</b>	387		427		819	
Do not trust	165	43 (37,9–47,8)	165	39 (33,9–43,0)	333	41 (37,2–44,1)
Have trust	222	57 (52,2–62,1)	262	61 (57,0–66,1)	486	59 (55,9–62,8)
<b>Trust in political authorities</b>	394		434		835	
Not high trust	96	24 (20,0–28,7)	128	30 (25,2–33,9)	228	27 (24,2–30,1)
High trust	298	76 (71,3–80,0)	306	70 (66,1–74,8)	607	73 (69,9–75,8)
<b>Trust in political power</b>	394		434		835	
Not high trust	96	24 (20,0–28,7)	128	30 (25,2–33,9)	228	27 (24,2–30,1)
High trust	298	76 (73,1–80,0)	306	70 (66,1–74,8)	607	73 (69,9–75,8)
<b>Trust in media</b>	394		428		828	
Not high trust	265	67 (62,4–72,0)	274	64 (59,4–68,4)	544	66 (62,6–68,8)
High trust	129	33 (28,0–37,6)	154	36 (31,6–40,6)	284	34 (31,2–37,4)
<b>Trust in monarchy</b>	395		427		828	
Not high trust	111	28 (23,8–32,6)	114	27 (22,3–30,9)	226	27 (24,2–30,6)
High trust	284	72 (67,7–76,0)	313	73 (69,1–77,7)	602	73 (69,4–75,8)
<b>Community belonging</b>	389		427		821	
Do not want to be accepted as Norwegian	130	33 (28,9–38,3)	102	24 (20,2–28,0)	233	28 (25,1–31,4)
Wanted to be accepted as Norwegian	259	67 (61,7–71,1)	325	76 (72,0–79,8)	588	72 (68,6–74,9)

<sup>a</sup> Missing values were not included.



**Fig. 3.** Level of Muslim religiosity among Muslims in Norway in percent in a scale range 0–5.0 = Not religious at all; 1 = low level of religiosity; 2 = some level of religiosity, 3 = medium level of religiosity, 4 = high level of religiosity, 5 = high level of religiosity.

**Table 2**

The associations (ORs) between degree of Muslim religiosity with community belonging and trust in society (general trust and institutional trust). Logistic regression analyses. Model 1 is a crude model, while Model 2 is adjusted for confounders: age, gender, nativity, time of residence in Norway, education and marginalization (self-reported lack of acceptance of Islamic practice in Norway).

	Community belonging	General trust	Trust in political authorities	Trust in political power	Trust in media	Trust in monarchy
<b>Muslim religiosity (model 1)</b>	1.10 (0.98–1.20)	0.96 (0.88–1.03)	0.92 (0.84–1.00)	0.89 <sup>a</sup> (0.81–0.97)	0.77 <sup>b</sup> (0.71–0.84)	0.89 <sup>a</sup> (0.81–0.98)
<b>Muslim religiosity (model 2)</b>	1.11 <sup>a</sup> (1.01–1.21)	1.00 (0.91–1.10)	0.96 (0.87–1.06)	0.91 <sup>a</sup> (0.83–1.00)	0.80 <sup>b</sup> (0.73–0.87)	0.92 (0.84–1.00)

<sup>a</sup> Significant at 0,05 level.  
<sup>b</sup> Significant at 0.01 level.

0.91–1.10;  $p = 0.90$ ; Table 2). For institutional trust, Muslim religiosity was not associated with trust in political authorities (OR = 0.96, 95% CI: 0.87–1.11;  $p = 0.40$ ) and trust in monarchy (OR = 0.92, 95% CI: 0.84–1.00;  $p = 0.08$ ). However, a negative association with trust in political power (OR = 0.91, 95% CI 0.83–1.00;  $p = 0.04$ ) and the media (OR = 0.80, 95% CI: 0.73–0.87;  $p < 0.01$ ) was found.

Unadjusted associations of the covariates with community belonging, general trust and trust in political power, political authorities, media and monarchy are presented in Table 3.

### 7. Discussion

We found that the degree of Muslim religiosity is positively associated with community belonging but did not have any association with general trust. Regarding the association between the degree of Muslim religiosity and institutional trust, we found a negative association with trust in political power and media, but no association was found with

trust in political authorities and monarchy.

The positive association between religiosity and community belonging in our study was supported by reports indicating that religiosity may play a positive role in developing and maintaining community belonging. A British study among Muslims found a positive association between religious and national identity (Bennett et al., 2022). In Norway, well-integrated Muslims have reported the Islamic faith as a motivator for integration in Norwegian society (Døving, 2011; Ishaq, 2017). Statistics Norway reported that Muslims with immigrant backgrounds, compared with Christian immigrants, were more likely to participate in community work (Barstad, 2019). In contrast, Fleischmann et al. found a negative association between Muslim religiosity and national identification. However, this study included only Muslim youth and did not adjust the analysis for socioeconomic factor or any other confounders (Fleischmann et al., 2018). However, the religious institution has been described as an important facilitator of community belonging based on qualitative evidence, whereas discrimination has

**Table 3**

Unadjusted associations (ORs) between sex, age, nativity, time of residence, education, marginalization with community belonging and trust in society (general trust and institutional trust). Logistic regression analyses.

	Community belonging	General trust	Trust in political authorities	Trust in political power	Trust in media	Trust in monarchy
<b>Sex</b>	1.79 <sup>b</sup> (1.32–2.43)	1.16 (0.87–1.53)	1.06 (0.78–1.44)	0.83 (0.61–1.13)	1.19 (0.89–1.60)	0.90 (0.66–1.23)
<b>Age</b>	1.23 <sup>a</sup> (1.00–1.51)	1.35 <sup>b</sup> (1.12–1.64)	1.46 <sup>b</sup> (1.18–1.79)	1.26 <sup>a</sup> (1.03–1.56)	1.85 <sup>b</sup> (1.50–2.28)	1.36 <sup>b</sup> (1.10–1.70)
<b>Nativity</b>	1.02 (0.67–1.56)	0.62 <sup>a</sup> (0.42–0.92)	0.92 (0.61–1.40)	0.76 (0.50–1.15)	0.57 <sup>a</sup> (0.37–0.88)	0.85 (0.56–1.29)
<b>Time of residence</b>	1.05 (0.89–1.24)	0.98 (0.84–1.14)	1.22 <sup>a</sup> (1.03–1.44)	0.92 (0.78–1.08)	0.90 (0.77–1.05)	0.99 (0.84–1.16)
<b>Education</b>	1.08 (0.89–1.32)	1.23 <sup>a</sup> (1.02–1.48)	0.97 (0.80–1.19)	0.96 (0.79–1.18)	1.06 (0.88–1.30)	1.07 (0.87–1.31)
<b>Marginal-ization</b>	0.72 <sup>b</sup> (0.61–0.86)	0.80 <sup>b</sup> (0.67–0.94)	0.6 <sup>b</sup> (0.50–0.72)	0.70 <sup>b</sup> (0.58–0.84)	0.50 <sup>b</sup> (0.41–0.61)	0.72 <sup>b</sup> (0.60–0.86)

<sup>a</sup> Significant at 0.05 level.  
<sup>b</sup> Significant at 0.01 level.



been defined as a barrier to community belonging (Salami et al., 2019).

We found that a sense of community belonging was high among Muslims in Norway, similar to the findings of the European Union Survey (European Union Agency for Fundamental Rights, 2017), which reported that 76% of Muslims were strongly attached to their country of residence. Furthermore, this European study found that the level of institutional trust was higher in Muslims than in the general population, especially among first-generation Muslims. However, community belonging was not investigated in relation to the degree of Muslim religiosity in that survey (European Union Agency for Fundamental Rights, 2017).

Furthermore, we did not find any association between Muslim religiosity and trust in the majority of the institutions included in the present study. These findings are supported by previous studies among Muslims in the diaspora (Traunmüller, 2011; Doerschler & Irving Jackson, 2012; Dingemans & van Ingen, 2015; Dilmaghani, 2017; Barstad, 2019; Bennett et al., 2022).

However, Muslim religiosity showed an inverse relationship to trust in political power and media. Although no previous study on religiosity and trust in media among Muslims in the diaspora was found, previous studies on religiosity and political trust reported mixed findings (Barstad, 2019; Doerschler & Irving Jackson, 2012; Maxwell, 2010).

These findings may be explained by the experience of how the Muslim identity is perceived by politicians and how Muslims are portrayed in the media rather than religiosity itself. This idea has been referred to as an experiential theory of how trust in society is developed among minorities (van Slageren & van Tubergen, 2022). Although Muslims do not account for more than 2%–4% of the total population in Norway (Østby & Dalgard, 2017), they are often mentioned in the Norwegian media. Approximately 70% of such mentions of Muslims have a negative focus (Lundby et al., 2017; The Directorate of Integration and Diversity, 2010). Moreover, Muslims were mentioned more frequently than the Norwegian Prime minister in the Norwegian media 2014 (Ishaq, 2017). Muslims are mostly portrayed in essentialist ways in the Norwegian media, and scholars have questioned the contribution of the media to the increasing levels of Islamophobia (Bangstad, 2016; Lundby et al., 2017; Proitz et al., 2017; van Es, 2016; Wanounou, 2018). The European Commission against Racism and Intolerance, which is a part of The Council of Europe, and the United Nations Committee on the Elimination of Racial Discrimination have criticized Norway for generalization and racist and xenophobic overtones regarding Muslims in political speech and media (European Commission Against Racism and Intolerance, 2009; Committee on the Elimination of Racial Discrimination, 2018). Representatives of the Progress Party (right wing political party), who also served in the Norwegian government, have defined even everyday Islamic practices, such as halal food, as part of an ongoing ‘stealth Islamization’ of Norway, suggested banning Islam, threatened Muslims with psychiatric treatment to deal with their religiosity and equalized Islam with Nazism (Bangstad, 2016; Mauno, 2010; Torgersen et al., 2011; Utrop, 2014). Although most Norwegian politicians are inclusive towards Muslims, Islamophobia in the political rhetoric has a broader scope than that mediated by the Progress Party. The characterization of Muslim women’s headscarves as equally harmful as female genital mutilation by a former Minister of Children and Families is one example of that (Hovda, 2009). This argument was used in an approach to ban the Muslim headscarf.

Trust in society is often defined as an individual’s expectation that society wants their well-being and a belief that society will at least not harm them (Doerschler & Irving Jackson, 2012; Hsiung & Djupe, 2019). When specific institutions seek to define the essential aspects of Muslim identity as a threat, and the very existence of Muslims in Norwegian society is consistently implied as a problem, it is not unlikely that the Muslims who embrace their religion are less likely to have trust in these institutions (Bangstad, 2014; Ishaq, 2017). How institutions approach a minority or group of individuals is described as affecting both ingroup and outgroup relationships. Negative media coverage of Muslims has

been found to decrease governmental trust among American Muslims (Saleem et al., 2019).

Our interpretation, indicating that trust is negotiated through experiences rather than a value embedded in a specific tradition transmitted over generations, can also be supported by previous research findings. Good and fair treatment by an institution results in more trust in the institution, whereas unfair or negative treatment results in the opposite (Nannestad et al., 2014; van Slageren & van Tubergen, 2022). A comparison of trust in the society between Muslims in Denmark and Muslims in their country of origin concluded that the source of trust in the society is most likely institutional and not embedded in the values related to identity (Nannestad et al., 2014). A study based on a lab-in-the-field experiment conducted in two different countries in South Asia, including Muslims and Hindus as minorities and majorities, respectively, concluded that the relative status of the individuals, or other contextual factors, plays a more significant role in the trust behaviour rather than religion (Gupta et al., 2018). As the degree of Muslim religiosity did not show an association with general trust and the majority of the institutions included in the present study, we believe that other SDH are more important in determining the overall trust in the society among Muslims. Gender, age, education, income, governmental structure, standard of living or wealth, ethnicity, relative status and health status are among the factors identified as predictors of trust (Delhey & Newton, 2005; Dilmaghani, 2017; Gupta et al., 2018; Ward et al., 2016). Religiosity may rather be related to trust in society in complexity with other factors. This may also apply to community belonging because a review article concluded that community belonging among Muslims differs depending on education at the individual level and country of origin. Accordingly, Muslim religiosity may be related to health through community belonging and trust in society, but such a role of religiosity appears to be context-driven. Context is defined as a structural determinant of health (Braveman et al., 2011; Solar & Irwin, 2010).

Despite the support from previous studies for our findings, we will be cautious in suggesting that the present study findings can be generalized to all societies with Muslim minorities. Further research is needed in different countries with a Muslim minority. The number of global refugees with Muslim backgrounds due to the global crisis is increasing, and there is a significant number of Muslims in the diaspora. Thus, there are few non-Muslim countries without a Muslim minority, which makes this study globally relevant.

### 7.1. Limitations

Considering the low response rate of 11.5%, the risk of selection bias was carefully evaluated. We conducted representativity analysis to detect non-response biases and found some bias regarding specific countries of origin, age, gender and some counties of residence in Norway (Supplementary Tables 3, 4, 5 and 6). Bias related to lower representation of participants in some subgroups, including country and age, were reduced by weighting the sample. The weighting was performed using SPSS by creating a weight syntax for gender and country background as in a ‘cell weight’. A low response rate may affect prevalence estimates, but is found to have a limited effect on association measures (Bjertness et al., 2010; Hu et al., 2017; Sogaard et al., 2004). In addition, bias in results due to non-response is somewhat more likely to occur if the willingness to participate in a study is associated with the outcome variable of the study (Hellevik, 2016). Accordingly, we estimated that non-response had not significantly affected our findings.

Regarding information bias, the participants were ensured anonymity in disseminating the data, and the questionnaire was also developed in collaboration with a reference group of researchers from different disciplines and Kantar TNS.

Even though our questionnaire as such was not validated, its key elements were validated. The variables for the trust were translated versions of items used in the European Value Study questionnaire and

were in line with variables used in other studies on trust in society (European Value Study, 2017; Halman et al., 2022). The variable measuring general trust was also used in the World Value Survey and was validated (Johnson & Mislin, 2012). Furthermore, community belonging can supplement objective variables showing a 'Muslim penalty', i.e. a negative association between Muslim identity and integration. The 'Muslim penalty' is especially evident regarding employment in Western countries regardless of nativity and educational attainment (Kogan et al., 2020). In Norway, Norwegian-born Muslims are over-represented in higher education (Kirkeberg et al., 2019). Despite academic degrees even from Norwegian institutions, Muslims have difficulties attaining a qualified job and earn less than other individuals with an immigrant background (Drange, 2007; Midtboen, 2016). Previous studies suggested discrimination against Muslims in Western societies as the cause of the 'Muslim penalty', but there are claims that the reason for this is that Muslims themselves do not want to belong to Western societies (Di Stasio et al., 2021; Midtboen, 2016). Hence, the variable for community belonging can be a strong factor in responding to these claims and acknowledging the complexity of different factors determining community belonging in an integration process. Subjective variables may be reliable and predict objective outcomes (Cleary, 1997; Doiron et al., 2015).

Finally, the questionnaire was available in English and Norwegian, and a report from Statistics Norway found that most immigrants used English or Norwegian questionnaires in similar surveys rather than questionnaires translated into their mother tongue (Holmøy & Wiggen, 2017).

Residual confounding cannot be excluded in the present study, although several confounders were included in the analysis. The internal validity of this study could have been higher by including employment as a confounder, but this variable was not available in the survey because the questionnaire was shortened to avoid the risk of reducing the response rate. In addition, the nature of the present cross-sectional study design makes it impossible to imply causality.

## 7.2. Strengths

The strength of this study is the use of a representative sample of Muslims in Norway by drawing the sample from the central registry that includes all people with legal residence in Norway. Furthermore, our analysis plan was based on DAG to identify the confounders that needed to be adjusted. Another strength is that the different variables of religiosity covered several dimensions of religion (Woodhead, 2011). Finally, our sample included Norwegian-born and not only immigrant Muslims because this group is a significant part of the Muslim population in Norway.

## 8. Implications

One implication of this study is support for the scientific approach refuting cultural explanation of health inequalities, which not only obscures structural causes of health disparities but also has the potential to increase social inequalities by fuelling stigmatization (Diaz, 2022; Viruell-Fuentes et al., 2012). Because we found that Muslim religiosity does not contribute to less community belonging and trust, we emphasize the need to investigate a broader set of factors when studying health inequalities among Muslims, according to the framework of SDH, in addition to intersectionality (Bowleg, 2012; Braveman et al., 2011).

Another implication is the involvement of politicians and the use of traditional media in public health communication to Muslim minorities or any collaboration with these institutions in reaching out to Muslim minorities. Such communication should be pursued by health professionals. In contrast to other European countries, such as Sweden (at least during the first part of the pandemic), the Covid-19 pandemic conferences in Norway were held by several political ministers in addition to the chief medical officer and the director of the Norwegian

Public Health Institute (Schneider et al., 2021). Lack of information was found to be a significant cause of overrepresentation and a lower vaccination rate among immigrants in Norway during the pandemic (Diaz, 2022). Considering the present study findings, the presence of politicians and the use of traditional media in communicating behavioural advice during the pandemic may have contributed to the low level of information among Muslims. Also, reasons for a distrust to politicians and the media among Muslims should be addressed. Furthermore, our findings also have implications regarding whether health care professionals should collaborate with religious organizations or religious institutions in reaching out to Muslims as a minority. Although such collaboration is common in global health, several medical officers have expressed insecurity about such involvement in Norway, both during the pandemic and post-pandemic phase of learning (Hopperstad & Bjørnstad, 2021; Oslo Municipality Health Agency, Personal communication; The Council for immigrant health in The Norwegian Directorate of Health, Personal communication). Because we did not find any indication of degree of Muslim religiosity as a hinder to community belonging or trust and Muslim religiosity was previously found to be associated with positive health outcomes, we do not dissuade culturally sensitive health interventions involving Muslim religiosity (Ishaq et al., 2021b).

Finally, our study has implications for the perception regarding Muslims. That the degree of Muslim religiosity is not associated with general trust and trust in the majority of institutions included in this study challenges the traditional perception of Muslims in Western countries as rigid and that they are strictly dictated by their religiosity (Ishaq, 2017). Our findings may indicate that Muslims are dynamic individuals and, similar to other humans, vulnerable to experiences, social factors and social selection. How the Muslim identity is approached in Norwegian society will impact social mobility, social causation and life perspectives, which are important in explaining the causal patterns of health and access to health care (Abubakar et al., 2016; Solar & Irwin, 2010).

## 9. Conclusion

We found that the degree of Muslim religiosity did not appear to be a barrier to community belonging or trust in the society among Muslims in Norway and that Muslim religiosity appeared to be a complex social determinant of health.

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## CRediT authorship contribution statement

**Bushra Ishaq:** Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Espen Bjertness:** Writing – review & editing, Supervision, Methodology, Investigation, Formal analysis, Conceptualization. **Lars Østby:** Writing – review & editing, Supervision, Methodology, Formal analysis, Conceptualization. **Asbjørn Johannesen:** Writing – review & editing, Visualization, Software, Methodology, Formal analysis, Conceptualization. **Tatjana Schnell:** Writing – review & editing, Supervision, Methodology, Formal analysis.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ssaho.2024.101065>.

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