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ARTICLE



## Cool dudes in Norway: climate change denial among conservative Norwegian men

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### ABSTRACT

In their article 'Cool dudes: The denial of climate change among conservative white males in the United States' the authors state: 'Clearly the extent to which the conservative white male effect on climate change denial exists outside the US is a topic deserving investigation.' Following this recommendation, we report results from a study in Norway. McCright and Dunlap argue that climate change denial can be understood as an expression of protecting group identity and justifying a societal system that provides desired benefits. Our findings resemble those in the US study. A total of 63 per cent of conservative males in Norway do not believe in anthropogenic climate change, as opposed to 36 per cent among the rest of the population who deny climate change and global warming. Expanding on the US study, we investigate whether conservative males more often hold what we term xenosceptic views, and if that adds to the 'cool dude-effect'.<sup>1</sup> Multivariate logistic regression models reveal strong effects from a variable measuring 'xenosceptic cool dudes'. Interpreting xenoscepticism as a rough proxy for right leaning views, climate change denial in Norway seems to merge with broader patterns of right-wing nationalism.

### ARTICLE HISTORY

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### Introduction

Public denial of trends as well as reasons for climate change is a major challenge in establishing efficient policies for mitigating climate change. Recently, it has become evident that resistance against climate science research and implications of a paramount global environmental problem may be part of a larger complex of right-wing nationalism. This tendency is just starting to attract scholarly attention, despite the possibility of providing new and important knowledge specifically on resistance towards effective climate politics as well as on broader political issues such as democracy, human rights and diversity (Lockwood 2018; Hultman et al. *forthcoming*). Recognizing the necessity of major change to the contemporary fossil fuel based way of living can threaten system properties, economic positions and power structures, not the least among citizens in rich countries who have benefited from oil, coal and gas for a long time. There is a great need for research that examines this problem complex across cultures. While some research has sought to compare European and US public perspectives on climate change (e.g. Lorenzoni and Pidgeon 2006), there is a general void of comparisons across western cultures when it comes to the social basis for climate change. In this article, we respond to the challenge posed in a seminal US study on climate change denial (McCright and Dunlap

2011a), and examine climate change denial among the Norwegians public.

Our objective is to replicate the research design of McCright and Dunlap (2011a) from the United States and to discover if this pattern of denial, taking Norway as our case, actually reflects a broader, cross-cultural trend. Based on the US findings, we ask whether conservative white males are more likely than the rest of the public to express denial of climate change. Also, inspired by contributions from countries outside the Anglo-domain (Liu 2015) as well as by research in Nordic neighbouring countries (Jylhä, et. al., 2016; Hultman and Pulé *forthcoming*), we examine whether xenoscepticism adds to the white male effect?

Norway offers a particularly interesting comparison to the United States with its seeming contradiction; on the one hand, the image of a green country and on the other an economy largely based upon extractive industries, most significantly oil and gas. Norway has a strongly oil-dependent economy, which finances one of the most generous public welfare systems in the world. Oil and gas exploitation also motivates large industrial developments including a global leadership role in maritime technologies. The important revenues and societal benefits afforded by this sector in all likelihood influence public opinions about science and technology (Listhaug 2005; Thurber, Hults, and Heller 2011).

Furthermore, Norway has a parliamentary system with eighth political parties registered in the assembly and a long-standing tradition with coalition governments as opposed to the two-party US political system. Norwegian policy on environmental issues tend to be chiselled out through a series of negotiations and compromises, often without resolving inherently conflicting goals. Although ethnic and cultural conflicts indeed exist in Norwegian society, race and religion cannot be said to play an equally important role in Norwegian politics as in the United States – and issues regarding the indigenous Sámi are often downplayed. Collectively, these traits and distinctions probably have some bearing on denial or acceptance of climate change.

We focus specifically on the ‘conservative white male effect’ and examine similarities and differences in the socio cultural patterns associated with denial of climate change in Norway and the United States. Many of the contributions to this field of research highlight the fact that white men hold disproportionate positions of power (e.g. McCright and Dunlap 2011a; Anshelm and Hultman 2014), and hence have good reasons to protect the existing system and reject anything that requires change. Climate change denial however, extends beyond elite layers of society. We suspect, along the lines of some resent research (Forchtner and Kølvråa 2015) that this form of denial is part of broader resistance against multiple social issues and challenge the assumption that the association between conservative white men and climate change denial is limited to white men’s identification with powerful elitist positions.

### Previous research

Today the scientific community is more in agreement on the state and seriousness of the climate change challenge than perhaps any other global environmental issue (IPPC 2014; Anderegg et al. 2010; Biesbrook et al. 2010; Cook et al. 2016). Leading climate researchers claim that the planet is facing an acute situation with fast emerging tipping points (Harvey 2016). Importantly however climate researchers highlight that the most serious consequences can still be avoided by mitigation measures effectively reducing the global greenhouse gas emission (IPCC 2014). Despite severe risks, sufficient mitigation efforts are delayed (Anderson and Peters 2016; Burck, Marten, and Bals 2014), partly because doubt and denial still exist among policy makers and the public (Oreskes and Conway 2010; Vainio and Paloniemi 2011).

In the United States, and to some extent in Canada and Australia, ‘organized denial’ has been identified in an array of studies over the past 15 years (e.g. Brulle 2014; Farrell 2016; McCright and Dunlap 2000, 2003).

The well-analysed and well-funded ‘Denial Machine’ contributes considerably to maintain an illusion of scientific controversy. Conservative think tanks, fossil fuel interests, PR firms and industry lobbies as well as special interest groups have distorted climate science and exploited the US media to promote their views (e.g. Gelbspan 2004; ; ; Boykoff 2011; Lahsen 2005; Austin and Phoenix 2005; Knight and Greenberg 2011). This body of research on organized denial in the United States – and increasingly in Canada, Australia and the United Kingdom (e.g. Young and Coutinho 2014) – provides a good sense of key actors and their primary tactics. Analyses of organized denial are complemented by extensive research on the role of media in promoting scepticism by giving disproportionate attention to sceptical voices (Boykoff 2011) as well as studies of the sceptical segments of the general publics of various nations including Australia (Tranter 2013), the United States (McCright and Dunlap 2011a, 2011b), and the United Kingdom (Whitmarsh 2011).

However, not all climate change scepticism is well organized and funded by powerful actors. Studies of lay scepticism have typically focused on the social basis for climate change concern or denial, such as the importance of gender, age, race and political orientation/ideology (e.g. Leiserowitz 2006; Poortinga et al. 2011; Tobler, Visschers, and Siegrist 2012; Häkkinen and Akrami 2014) on psychological barriers (Gifford 2011), complexities of grasping this issue and human judgment (Weber and Stern 2011) and on how diverse values set social limits for adaptation to climate change (Adger, Arnell, and Tompkins 2005). Moreover, people tend to resist messages that conflict with their existing views. Right-leaning individuals may for instance resist acknowledging climate change because they consider the discourse to threaten their socio-political identity as well as their view of an ideal society (Hoffarth and Hodson 2016). Importantly, research consistently demonstrate that one of the most important predictors of climate change denial is political orientation and identification (McCright and Dunlap 2011a; Poortinga et al. 2011; McCright, Dunlap, and Marquart-Pyatt 2016; Hornsey et al. 2016; Tranter 2017), reflecting a motivational tendency to protect the status quo (Feygina, Jost, and Goldsmith 2010). Compared to their left-wing counterparts, right-wing individuals tend to be more likely to accept and justify the existing social structures, and resist changes to traditional lifestyles (e.g. Jost, et al. 2003). This could explain why they are more likely to reject science demonstrating that societal structures and practices need to be altered. If climate science is rejected due to ideological reasons, denial cannot be decreased solely by scientific communications. Underlying motivations needs to be identified and addressed.

### The US – Norway comparison

In Norway only a few studies have examined climate change concern (Austgulen and Stø 2013), and we need a better understanding of what Norgaard (2011) calls ‘the social organization of denial’. One study shows that the segment of outright denialists is fairly small, but only 65 per cent agree that climate change is caused by humans, a significant decrease from 2009 when 75 per cent of the public attributed climate changes to anthropogenic activities (Austgulen 2012).

It is plausible that climate change denial in Norway is also shaped both by the desire to defend identity forming in-group beliefs and justifying system properties, which ensure power and economic benefits. However, identities in need of defence from climate change and global warming challenges could well have other in-group references than that of white conservative elites. In Sweden, for instance, Anselm and Hultman (2014) found CC scepticism to be rooted in an ‘industrial masculinity’, and Liu (2015) found Chinese scepticism to be rooted in nationalism. Climate policies require measures that influence certain lifestyles more than others do, and traditional labour lifestyles are under attack. Oil workers and heavy vehicles/machinery enthusiasts are iconic examples, who also may feel a need to defend and justify their lifestyles

McCright and Dunlap’s US study (2011a) has a certain elitist edge, focusing on self-confident conservative white males who defend privileged and powerful positions when rejecting anthropogenic climate change. We suggest expanding this discussion by including a perspective on the right-wing nationalist political parties that gain government power across Europe and in the US (Forchtner and Kølvråa 2015; Lockwood 2018; Hultman et al. *forthcoming*). Here we add a concept and a rough proxy variable we call xenosceptic views. Scepticism or outright disdain towards immigrants and asylum seekers is a core element in right leaning nationalism.

McCright and Dunlap (2011a) stated that denialists in different societal areas tend to be conservative white males and that within elite groups climate change denialists are heavily overrepresented by conservative white males. They used five indicators of denial of climate change measuring beliefs about climate, about the scientific community and personal concern about global warming, and found that conservative white males were more likely to endorse denialist views on all items than other Americans. Interestingly, the differences were even greater for those conservatives who claimed to understand the issue of global warming very well. The differences remained significant when the effects of race, gender, political ideology and several other variables were controlled for. McCright and Dunlap (2011a) and several others (e.g. Malka, Krosnick, and Langer 2009; McCright and

Dunlap 2011b; Leiserowitz 2006; Brody et al. 2008; Wood and Vedlitz et al. 2007) found that self-identified liberals, non-whites and women were more concerned about climate. The authors concluded that the unique views of conservative white males contribute significantly to the high rate of climate change denial in the United States (McCright and Dunlap 2011a).

McCright and Dunlap (2011a) employed a theoretical rationale combining two mechanisms; identity protective cognition and system-justification tendencies. Identity protective cognition stems from research in cultural theory (Kahan et al. 2007) which views risk perception as shaped by cultural worldviews, and that individuals often adopt beliefs that are shared by other salient people they associate themselves with. Beliefs shared by members of an in-group are often resistant to modification or development. Especially when they are challenged by the beliefs expressed by other out-groups. They build their understanding of the mentality of conservative white males on how Kahan et al. (2007) explain that resistance to new information such as scientific findings can be a form of identity self-defence and protection of self-esteem that individuals experience from group membership.

They also link denial to high-risk acceptance, in this case trivialising or belittling potential harm from climate change, since white males tend to have more power in society than other groups and generally see less risk in the world (Flynn, Slovic, and Mertz 1994). McCright and Dunlap (2011a) combine this cultural-psychological explanation for denial with ideas from other research suggesting that conservatives to a greater extent than liberals resist change and support societal status quo since they gain from the current mode of society. In terms of climate change denial, this is particularly evident in the way conservatives have used media and the fossil fuel industry for the past 20 years to drive home a message to the public that anthropogenic climate change is not real and does not warrant any action to alleviate future problems.

Lastly, they assert that conservatives tend to protect the current capitalist industrial order, which provides them with power and disproportionate financial benefits in many ways. In sum the authors suggest that major challenges like climate change spurs a heightened emotional investment in defending group claims. Solutions to the CC challenge may after all threaten, or at least be perceived as threatening to the continuation of the system that denialists benefit from (McCright and Dunlap (2011a).

### Data and analysis

A total of 4077 Norwegians, aged 18–87, completed an online questionnaire in 2012 asking multiple

questions about attitudes towards climate change and the environment. Respondents were drawn from a nationally representative panel (TNS Gallup-panel) of 50,000 persons. Approximately 7000 respondents were contacted, leaving us with a 57 per cent response rate. The questionnaire was self-administered through an Internet solution and the link was closed when target sample size was reached. Therefore, the response rate would have been higher if everyone who wanted to answer had been given the opportunity. The advantage of this procedure is that sampling corrections can be made during the course of data collection if disproportions are observed. Our sample was stratified according to official Norwegian statistics, using age, sex, geography and level of education as stratification variables.<sup>2</sup>

With a few adjustments, this data set enabled us to replicate McCright and Dunlaps (2011a) study. We used several questions translated from this study, including indicators of climate change denial or scepticism. Here we focus on two of these indicators, namely 'trend and attribution scepticism' and 'seriousness of global warming'. Table 1 shows descriptions, coding, mean and standard deviation for all the variables in the following analyses.

To cover both trend and attribution scepticism to climate change we asked: Which of the following three statements do you personally believe? 'Climate change is happening now, caused mainly by human activities', 'climate change is happening now, but caused mainly by natural forces', 'climate change is not happening now' and unsure/don't have an opinion. Here we use both a version with just trend scepticisms and a version combining both trend and attribution scepticisms, where respondents who are either trend or attribution sceptics simply are called climate change sceptics. Respondent's assessment of

how seriousness global warming is, was measured by asking respondents to agree or disagree with the statement if media generally exaggerates the seriousness of global warming. Answers were given on a scale ranging from 'disagree completely' (1) via 'neither disagree nor agree' (3) to 'agree completely' (5) – coded 1 for those who agree (4 and 5).

As an introduction to a 10-item inventory on self-assessed knowledge on various climate and environmental issues, we asked: 'How well do you consider your own knowledge on the following topics (Climate change/global warming)?' – Good, 'Fairly good, Fairly bad, Bad or Have never heard of.

We measure 'conservative' as an index based on level of agreement (Five point scale from completely disagree to completely agree. The three items had an alpha reliability of 0.7) with three statements: (1) a high tax level ensures public benefits, (2) more governmental responsibilities should be performed by private businesses, (3) the government interferes too much with peoples' private life. Item 2 and 3 were reversed and the final *political ideology* scale ranged from very conservative (1) to very anti conservative (5).

Norway has a multi-party system, and *party identification* is not easily comparable to the United States. From a list of nine political parties, respondents were asked to report which party they voted for at the most recent parliamentary election. We categorized four of these parties as the most conservative, and respondents who voted for any of them were coded 1 and labelled 'confirmed conservative'. The four political parties coded as conservative are; The Progress Party, The Conservative party of Norway, The Christian Democrats, The Centre Party (former The Farmers Party). All the others, including respondents who hesitated to answer, did not vote or did not have

**Table 1.** Coding, mean and standard deviation for variables in the study.

Variable	Coding	Mean	SD
Trend sceptics	0 (all else) to 1 (trend sceptics)	.01	.12
Climate change sceptics	0 (all else) to 1 (trend and attribution sceptics)	.41	.49
Scientific consensus	0 (all else) to 1 (no scientific consensus)	.17	.37
Seriousness of global warming	0 (all else) to 1 (media exaggerates global warming)	.35	.48
Worry about global warming	0 (all else) to 1 (not worried)	.17	.38
Political ideology	1 (very conservative) to 5 (very anti-conservative)	3.04	.87
Confirmed conservative voter	0 (no) to 1 (yes)	.37	.48
Norwegian	0 (Immigrant background) to 1 (ethnic Norwegian)	.92	.26
Gender	0 (female) to 1 (male)	.51	.50
Conservative 'Norwegian' male	0 (no) to 1 (yes)	.18	.39
Self-reported understanding	0 (all else) to 1 (good)	.12	.33
Confident conservative Norw. male	0 (no) to 1 (yes)	.03	.16
Age	18 –87 (numbers inn actual years)	44.92	16.28
Educational attainment	1 (secondary school or less) to 5 (university 4 years +)	2.92	1.15
Annual income in NOK	1 (less than 200k) to 6 (more than 800k)	2.90	1,28
Full time employment	0 (no) to 1 (yes)	.52	.50
Children less than 15 in household	0 (no) to 1 (yes)	.27	.44
Environmental orientation	0 (distrust environmental org.) to 4 (environ. org. member)	1.26	.91
Xenosceptics	0 (no) to 1 (yes)	.26	.43
Xenosceptic Norwegian cons. male	0 (no) to 1 (yes)	.08	.27

<sup>a</sup> Most scientist do not believe that anthropogenic climate change is happening or most scientist doubt that anthropogenic climate change is happening.

the right to vote, were coded 0 and labelled not (confirmed) conservatives.

*White* is not a widely used as a social category in Norway. The closest is probably *ethnic Norwegian*, which parallels the idea of white to some extent. Here we define respondents who are born in Norway with two Norwegian born parents as Norwegian. All others are categorized under the heterogeneous label *immigrant background*. Limitations in the data prevent us from disaggregating non-Norwegian parental backgrounds.

In accordance with the US study, we asked the respondents to assess their own understanding of climate change and global warming. They gave answers on a scale ranging from 1 (bad) to 4 (good). The variable was dichotomized into 1 (good) and 0 (all else). Ethnic Norwegian males who voted for one of the conservative parties, and in addition reported good understanding of climate change and global warming were labelled *confident conservative Norwegian males*.

Immigration is currently one of the most important drivers of social change in most of Europe. Loud and outspoken criticism towards massive immigration is considered politically incorrect and a hallmark of radical right wing political rhetoric. Respondents were asked to respond to the statement 'We have enough immigrants and asylum seekers in our country'. Level of agreement was reported on a five-point scale ranging from completely agree to completely disagree. Respondents who report that they agreed completely were coded 1 as respondents with *xenosceptic views*.

McCright and Dunlap (2011a) emphasizes the white male effect in terms of control variables. In our logistic regression model, we control for age, gender, educational attainment, annual income, full time employment and environmental orientation. We use information on children (persons under 15 years of age) in the household as a proxy for parenthood. We define environmental orientation as a combination of very high trust in environmental organizations (WWF and Friends of the earth) and membership in

(at least) one of eight environmental NGOs (3 Norwegian and 5 international). A five-point scale range from 0 (not very high trust and no membership) to 4 (very high trust and organization membership). We first examine to what extent Norwegian conservative males are more prone to climate change denial than the rest of the population, and whether confident Norwegian conservative males are even more so. We then examine the degree of climate change denial among a group of men we term *xenosceptic cool dudes*. They are conservative males with negative attitudes towards immigrants. Finally, we use logistic regression models to examine attitudes among conservative males and the rest of the population on the two different aspects of climate change denial.

## Results and discussion

Conservative Norwegian males embrace denial beliefs considerably more than the rest of the population, and score significantly higher on all items (Table 2). The overall pattern strongly resembles the findings from the US population (McCright and Dunlap 2011a). The strongest correlation applies to the variable combining trend and attribution scepticisms – the most direct measure of climate change denial. A total of 62.9 per cent of the conservative males versus 35.5 per cent of all the others agree with some form of climate change denial. Conservative men more often think that media exaggerates (gamma .63) than the rest of the public. There are few trend sceptics among Norwegians. Even among conservative men a mere 2.7 per cent claim that climate change does not occur. Only 1.1 per cent of the remaining population disagree that climate change is actually taking place.

Despite a few differences on the level of details, we can borrow and slightly twist a phrase from the US study; 'in the Norwegian public conservative males have a strong tendency to endorse climate change denial' (McCright and Dunlap 2011a, 5). However,

**Table 2.** Per cents reporting selected climate change views.

Climate change view	Total (N)	Norwegian conservative males (N)	All else (N)	$\gamma^a$
<i>Denial belief</i>				
Trend sceptics	1.3 (4077)	2.7 (749)	1.1 (3328)	.44**
Trend and attribution sceptics	40.5 (4077)	62.9 (749)	35.5 (3328)	.51***
Seriousness of GW is aggregated in the media	34.8 (4077)	55.9 (749)	30.0 (3328)	.49***
<i>Perceived understanding</i>				
Self-reported understanding (good)	12.2 (4077)	13.9 (749)	11.8 (3328)	.09 <sup>ns</sup>
<i>Xenosceptics</i>				
Totally agree that Norway has too many immigrants	25.1 (4077)	43.1 (749)	21.0 (3328)	.48***
<i>Climate change view</i>				
Total (N)				
Xenosceptic Nor. Cons. males <sup>b</sup> (N)				
All else (N)				
$\gamma^c$				
<i>Denial belief</i>				
Trend sceptics	1.3 (4077)	5.3 (323)	1.0 (3754)	.69**
Trend and attribution sceptics	40.6 (4077)	74.3 (323)	37.6 (3754)	.66***
Seriousness of GW is aggregated in the media	34.8 (4077)	70.0 (323)	31.8 (3754)	.67***
<i>Perceived understanding</i>				
Self-reported understanding (good)	12.2 (4077)	16.1 (323)	11.8 (3754)	.18*

<sup>a</sup> Gamma for the relationship between the conservative 'Norwegian' males dummy variable and the denial variables.

<sup>b</sup> Conservative 'Norwegian' males reporting that they totally agree that Norway has too many immigrants and asylum seekers.

<sup>c</sup> Gamma for the relationship between the Xenosceptic Norwegian Conservative Males dummy and the denial variables

Norwegians differ more from the US citizens in self-confidence in knowledge about climate change. Only a relatively small proportion of the respondents (12.2 per cent) claim good knowledge about climate change, and conservative males are not significantly different from the rest of the public.

Table 2 shows that conservative males are much more likely to identify with xenosceptic views than others. In the bottom section of Table 2 we explore the possibility that this segment of conservative males tends to express climate change denial more often than other parts of the public. Norwegian conservative males who do not claim xenosceptic views are included in the 'all other adults' category. On all measures of denial xenosceptic cool dudes have higher scores (Table 2), that is conservative males are even more prone to climate change denial if they also acknowledge xenosceptic views. Furthermore, being a xenosceptic cool dude does not imply high thoughts of one's own level of understanding. For instance, 75.8 of the xenosceptic cool dudes are either trend or attribution sceptics. A greater percentage of the xenosceptic conservative males than the non-xenosceptic males reports denialist views. This point

towards the existence of another social basis for system justification tendencies, and identity protective cognition than the one emphasized by McCright and Dunlap (2011a).

Following the structure of the US study, we examined correlations between xenosceptic views and the denialist measures, discrete for Norwegian conservative males and for the rest of the public (Table 3). We observe moderate and strong coefficients for the conservative males. Gamma values for the rest of the public are weaker. The finding is consistent with the hypothesis that climate change denial is becoming part of a subgroup of conservative males' identity-protective effort and their efforts to justify the existing (oil-economy dependent) system.

We then explored factors that could predict the two aspects of climate change denial through six logistic regression models (Table 4). We report three models: (1) a base model as similar as possible to McCright's and Dunlap's base model which includes all the control variables; (2) an expanded model adding the Norwegian conservative males variable and (3) an further expanded model including the xenosceptic cool dudes variable.

**Table 3.** Correlations (Gammas) between xenoscepticism and climate change denial.

	Conservative Norwegian males (N)	All else (N)
Trend sceptics	.77*** (749)	.43* (3328)
Trend and attribution sceptics	.42*** (749)	.33*** (3328)
Seriousness of GW is aggregated in the media	.48*** (749)	.33*** (3328)
Self-reported understanding (good)	0.16 <sup>ns</sup> (749)	-.13* (3328)

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$

**Table 4.** Logistic regression models predicting climate change denial in beliefs about climate science and the scientific community.

Independent variables	Trend and attribution sceptics			Media exaggerates global warming		
	Base	Norwegian conservative males	Xenosceptic Norwegian conservative males	Base	Norwegian conservative males	Xenosceptic Norwegian conservative males
Political ideology	-.53*** (.05)	-.47*** (.05)	-.51*** (.05)	-.57*** (.05)	-.52*** (.05)	-.55*** (.05)
Xenosceptic dummy	.43*** (.09)	.42*** (.09)	.28** (.10)	.50*** (.09)	.48*** (.09)	.32*** (.09)
Norwegian	.18 <sup>ns</sup> (.15)	.08 <sup>ns</sup> (.15)	.13 <sup>ns</sup> (.15)	.31* (.15)	.21 <sup>ns</sup> (.16)	.25 <sup>ns</sup> (.15)
Gender	-.47*** (.08)	-.30** (.09)	-.40*** (.08)	-.49*** (.08)	-.33*** (.12)	-.39*** (.08)
Age	.02*** (.00)	.02*** (.00)	.02*** (.00)	.01*** (.00)	.01*** (.00)	.01*** (.00)
Educational attainment	-.08** (.04)	-.09** (.04)	-.09* (.04)	-.17*** (.04)	-.18*** (.04)	-.18*** (.04)
Annual income	-.04 <sup>ns</sup> (.03)	-.04 <sup>ns</sup> (.03)	-.04 <sup>ns</sup> (.03)	.02 <sup>ns</sup> (.03)	.02 <sup>ns</sup> (.03)	.02 <sup>ns</sup> (.03)
Full-time employment	.12 <sup>ns</sup> (.09)	.11 <sup>ns</sup> (.09)	.11 <sup>ns</sup> (.09)	-.12 <sup>ns</sup> (.09)	-.12 <sup>ns</sup> (.09)	-.12 <sup>ns</sup> (.09)
Children less than 15 in household	-.11 <sup>ns</sup> (.09)	-.13 <sup>ns</sup> (.09)	-.12 <sup>ns</sup> (.09)	-.17 <sup>ns</sup> (.09)	-.19* (.09)	-.18 <sup>ns</sup> (.09)
Environmental movement identity	-.61*** (.05)	-.60*** (.05)	-.60*** (.05)	-.55*** (.05)	-.54*** (.05)	-.54*** (.05)
Norwegian conservative males		.43*** (.11)			-.39*** (.11)	
Xenosceptic Norwegian cons. males			.60*** (.17)			-.60*** (.16)
Constant	2.34*** (.27)	1.95*** (.29)	1.84*** (.29)	1.89* (.30)	1.56*** (.36)	1.56*** (.36)
-2 Log likelihood	4250.12	4235.39	4238.53	4028.44	4016.75	4014.75
Nagelkerke $R^2$	.22	.23	.23	.23	.23	.23
Sample size	3622	3622	3622	3622	3622	3622

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$

In both base models, politically conservative people and persons with less education are more likely to express denial beliefs (Tables 4). This resembles findings from other studies where political conservatives are less concerned about global warming than more liberal respondents (e.g. McCright 2010). Education level is frequently used as a demographic control variable in studies of various aspects of climate change attitudes, such as concern and denial. However, the effects of education are often weak (e.g. Kellstedt, Zahran, and Vedlitz 2008) or mixed (e.g. McCright and Dunlap 2011a), but this is not the case here. Regardless of which denial indicator we apply, educational attainment comes out with a strong negative effect on climate change denial. This suggests that the effects of education are more complex than sometimes anticipated. For instance, Hamilton (2011) and Hamilton and Keim (2009) found in a US samples that concern about climate change increased with education among Democrats, but decreased among Republicans, suggesting interaction effects between education, knowledge and political orientation.<sup>3</sup>

For both indicators in the present study, men express denial more often than women do, a trait seen in different types of environmental research, where women tend to hold more pro-environmental attitudes than men (e.g. Davidson and Haan 2012). Age follows the same patterns, the likelihood of being a denialist increases with increasing age (e.g. McCright and Dunlap 2011a).

Respondents who are born in Norway with two Norwegian born parents are more likely than others to agree that media exaggerates global warming. This ethnic dimension has no significant impact on the other denialist variable. Being ethnic Norwegian is over all a weak and inconsistent predictor of climate change attitudes.

We further find that Norwegian males score significantly higher on both denial aspects. Even when controlling for the full basic model, conservative men are more likely to be climate change sceptics and feel that media exaggerates global warming. Hence, the interaction between gender and conservative opinions does matter in explaining these two aspects of climate change denial in Norway. Consequently, the idea that conservative Norwegian males are more likely than other Norwegians to report climate change denial, holds true for the Norwegian public as well.

The third model shows that xenosceptic cool dudes are even more likely to report climate change denial than all other members of the public, including the conservative Norwegian males who are not classified as xenosceptic. For both aspects of climate change denial, the correlations are strong. Climate change denial is heavily associated with scepticism

towards immigrants among Norwegian conservative men. Even if our xenosceptic concept is somewhat loose, this suggests that a different or additional kind of identity protective cognition than the one documented among US conservatives (McCright and Dunlap 2011a) is at play. However, our finding does resemble studies from China as well as of lately the United Kingdom, Denmark and Sweden where a certain form of nationalism stand in way for relevant climate change policies Forchtner and Kølvråa (2015); Liu (2015); Jylhä et al. (2016); Hultman and Pulé (forthcoming); Hultman et al. (forthcoming). The connection between xenoscepticism and climate change denial might be most visible in the Swedish right-wing nationalist/neo-fascist political party Sweden Democrats. Representatives brought, for the first time ever, denial into the parliament debates 2013 and voted against ratification of the Paris agreement 2016. They also wanted to cut funding for the climate research connected to SMHI 2017 and rejected the so called 'climate law' put in place 2018 in addition to sharing information with the organized climate denial groups of Klimatsans and Stockholm initiative Hultman et al. (forthcoming).

Perhaps what we observe is the product of a different kind of identity work – an identity struggle formulated in opposition to the cultural and political ideas that flourish among influential elites in Norway, but also 'new' values that become more dominating in the centre of the political culture. For instance, current influential Eco modernism in Norway (as in Sweden) rests on issues like accepting that climate change is caused by anthropogenic activities, and has a clear affiliation with support for humane immigration politics (Rockström 2014). At the same time, these topics are agents for change in contemporary society. Norway is increasingly turning into a multi-ethnic and multicultural society, transmission to renewable energy challenges the completely dominant Norwegian oil industry, and expert elites embrace these changes. They are however, strongly challenged by right-wing nationalist political parties in Norway as well as many other countries (Hultman & Kall 2014; Forchtner and Kølvråa 2015).

In Table 5, we compare the effects of the conservative Norwegian males dummy with that of the xenosceptic cool dudes. The conservative Norwegian males category still includes all the conservative Norwegian males, also those who are classified as xenosceptic. The likelihood ratio test for the media exaggerates global warming variable shows that the xenosceptic cool dudes dummy improves model fit slightly more than the conservative Norwegian male does. The same is not the case for trend- and attribution scepticism. In terms of model fit, neither of the two models add much, even if the improvement in all cases are clearly significant. This however, is as

**Table 5.** Model comparison statistics and odds ratio from logistic regression models: conservative Norwegian males versus xenophobic cool dudes.

	Likelihood ratio test <sup>a</sup>		Odds ratio	
	Norwegian conservative male	Xenosceptic Norwegian conservative male	Norwegian conservative male	Xenosceptic Norwegian conservative male
Trend and attribution sceptics	14.73	11.60	1.54	1.75
Media exaggerates global warming	11.70	13.70	1.47	1.81

<sup>a</sup>Comparison of Norwegian Conservative male and Xenosceptic Norwegian Conservative male to the base model, based on chi-square distribution/Omnibus Tests of Model Coefficients (SPSS).

expected. The xenosceptic conservative Norwegian male group only contains 8 per cent of the respondents ( $n = 323$ ).

The xenosceptic cool dude dummy has higher odds ratio than the conservative Norwegian male dummy for both denial indicators. Again, we observe solid differences between conservative Norwegian males and xenosceptic cool dudes. Hence, we may conclude that xenosceptic views adds to and expand our insight into the 'conservative white male effect'.

## Conclusions

The results of this study show that large parts of the lay public are in denial of the causes of climate change, and that the resistance of white conservative males is not limited to the United States, but probably represents a widespread social phenomenon. In our study of the Norwegian public, we confirm that conservative Norwegian males are more likely than other parts of the public to refute anthropogenic climate change. Climate change denial in the US study was framed in the perspective of protecting shared identities and values of salient social groups (Kahan et al. 2007) as well as the tendency to justify systems of power and economic structures that provide desired benefits. In our study, we also find a clear distinction between what we term xenosceptic cool dudes and other segments of the public. Although we have limited data on this particular topic, we believe the attitudes of this group of conservative men towards climate change are part of a larger attitude complex expressing resistance against changing societal conditions, such as immigration and increasing ethnic and cultural diversity. This is a tendency also found in the United Kingdom, Denmark and Sweden of lately connected more broadly to right-wing nationalist sentiments (Forchtner and Kølvråa 2015; Liu 2015; Jylhä et al. 2016; Hultman and Pulé forthcoming, Hultman et al. forthcoming. This issue is under-researched, and needs to be explored not the least since it seems to affect global politics in dramatic ways (Lookwood, 2018).

Other research (Norgaard 2011) shows how denial is produced on a national level and that Norway is said to be prominent in environmental technology

and sustainable development, despite the dependence on oil. On a local level, political organizations such as the Labour Party contribute to obfuscate danger by ensuring that climate change never is included on the municipal agenda. The local newspaper may report on climate change, but typically in combination with a technical solution. For example, the image of snow guns in ski areas is put forward as a clear assurance that the severity of climate change can always be solved or mitigated by technology. This research points out how the climate issue is the elephant in the room that no one wants to deal with, even if everyone knows about it. Those who were forced to talk about it, such as teachers, did it by wrapping it in a positive future so the story would not be too difficult to swallow (Norgaard 2011). Maybe the reaction by xenosceptic males could be understood as an indicator of two ideas gaining ground in Norwegian society; protection of the oil industry by issuing new rights to drill and rise of right-wing nationalism – simultaneously promising to continue drilling for oil and gas as the economic basis for welfare and to ensure a strict immigration policy.

Furthermore, our study sheds a slightly different light on the elitist dimension in the US study, more in line with earlier Norwegian and Swedish research. Right wing nationalism is far from an elitist phenomenon and the Norwegian xenosceptic cool dudes (as in Sweden) appear as less elitist than their counterpart in the US version does (Mulinari and Neergaard 2014). However, we may be on the trail off an alliance that cuts across classes. Previous research has shown a division within the Norwegian middle class on environmental issues. Skogen (1999) found that the technical-economic segment of the middle class was far less pro-environment oriented than their counterparts from the humanistic social strata of the same class. Skogen (1999) identified an alliance between workers and a segment of the middleclass linked through a common interest for the well-being of industry. Upper and lower segments in the industrial and economic sectors, that is industry leaders and workers have joint interests, at least in the short run. In Sweden as well as the other Nordic countries climate change research has been recognized

by all political parties from conservatives to the left in what has been called an 'Eco modern consensus'. Even though there is a sharp conflict regarding solutions, the problem is understood in a similar way (Anshelm and Hultman 2014). It should be noted that Norwegian industrial workers for the most part enjoy a comfortable lifestyle supported by relatively good wages. The economic basis for the livelihoods of corporate leaders and workers alike may be affiliated with both identity and their inclination to protect or oppose the system they operate within.

Contrary to McCright and Dunlap's study (2011a) among US citizens, we find no association between being a Norwegian conservative male and self-reported understanding of climate change. Conservative Norwegian men are no more confident than other Norwegians in their knowledge of climate change. Considering the strong correlation between xenosceptic views and climate change denial among conservative white males, we argue that climate change denial constitutes a form of identity protective cognition among Norwegians as well, and much in line with other Nordic countries such as Sweden (Anshelm and Hultman 2014). This probably reflects a system-justification tendency, but not one that is based on identification with elites in society, which makes it even more important to understand it in the perspective of increasing right-wing nationalism.

In this paper, we have made investigations into the association between climate change denial and 'xenosceptic views', and utilized xenoscepticism as a very rough proxy for right leaning nationalism. There is clearly a need for more in-depth research on social and cultural resistance to accepting climate change as a major challenge to future society. We suspect that climate change denial is but one facet of a more general complex of resistance to various societal issues such as economic growth, environmental conservation, globalization, governance and relationships to other social groups. We also postulate that dimensions of resistance, openness to change and new knowledge, and willingness to change behaviour, are affected by early life socialization, personality traits, social and cultural capital, which all deserve further study as contributing antecedents to climate change denial.

More to the current political arena; phenomena like Trump and growing support for right wing populist parties in many European countries – are all recognized by outspoken climate change denial. Further studies should look into these relationships by engaging more elaborate measures on the complex and multi-dimensional right wing populism (e.g. employing constructs like anti-elitism, political alienation and resistance) that these days increases its influence in the socio-political landscape of the western world.

## Notes

1. Our use of the concept xenosceptical to describe the data draw upon the concept of xenoscepticism which mean 'suspicion or dislike of immigrants combined with a belief that immigration rates are too high'. <https://www.macmillandictionary.com/dictionary/british/xenoscepticism>.
2. Data was collected in cooperation with TNS Gallup Norway which is ISO certified by the standards ISO 9001:2008, ISO 20,252 (Sector standard) and ISO 26,362 (the Gallup panel that are used for this study). TNS Gallup always follows the existing directives from The Norwegian Data Protection Authority (NSD), and is controlled annually according to the Sarbanes-Oxley directive. All participants in the present study are anonymous to the research team.
3. Our goal in this paper is to offer a replication of McCright's and Dunlap's 'Cool dudes'. Yet we did a few analyses aimed to follow up on Hamilton's (and others') findings from the US, and the exercise revealed resembling results. Using trend and attribution scepticism as the dependent variable in a logistic regression, interaction between educational attainment and political ideology came out with significant negative effects. We examined a short model containing only 'Educational attainment' ( $B = .26, SE = .11, p < .05$ ), 'Political ideology' ( $B = -.30, SE = .11, p < .01$ ) and 'Educational attainment\*Political ideology' ( $B = -.13, SE = .04, p < .001$ ) [Constant ( $B = .84, SE = .34, p < .01$ )]. The following table shows that more education leads to higher probability for denial among (very) conservatives while the opposite is the case for the (very) anti-conservative, and furthermore that the effect of political ideology is about twice as strong among the highly educated compared to those on the lowest educational level. Even when added to the full model (equal to the one in table 4) the interaction variable had a significant effect (Educational attainment \*Political ideology:  $B = -.10, SE = .04, p < .01$ ). The 'Xenosceptic Norwegian Conservative Males' variable was still significant ( $B = .56, SE = .17, p < .001$ ).

Estimated probabilities for trend and attribution scepticism by level of education and political ideology\*.

Educational attainment	Political ideology				
	1	2	3	4	5
1	0.66	0.56	0.46	0.36	0.27
2	0.69	0.57	0.44	0.31	0.21
3	0.72	0.57	0.41	0.27	0.16
4	0.75	0.58	0.39	0.22	0.12
5	0.78	0.58	0.36	0.19	0.09

\* The probabilities are estimated from the coefficients in the short model explained in the preceding text.

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