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Human values and news' impact on climate change beliefs: A comparative study on millennials in Sweden and Russia

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Despite the global problem of climate change being covered in the media, some people tend to treat the issue as a distant; therefore, less urgent. Research has emphasised the significance of the polarisation phenomenon, with some countries growing in denial. This study addresses this problem by looking into people's values, as these have been found crucial in determining perception on climate change. Further, drifting away from political views, the study focuses on cultural impact, in this case, media use in Sweden and Russia. We found conservation values have a positive impact on shaping beliefs in climate change in Russia, albeit negative in Sweden. News consumption had limited implications in the relationship between human values and beliefs in climate change in Sweden, none in Russia. The findings can add a unique contribution to informing the creation of public awareness campaigns in Russia and Sweden. This could also encourage further research in different countries but also on different age groups or specific gender. Finally, this research revolves around beliefs, leaving an area for studying attitudes and behaviour.

Keywords: Climate change, human values scale, news consumption, Russia, Sweden

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INTRODUCTION

Climate change has been increasingly gathering the attention of authorities and policy makers over the recent years (Ali et al. 2018). However, people still consider the environmental issue as distant and disagree about the existence risks, seriousness and any future consequences of the climate change (Hulme, 2009). Therefore, do not engage

with the communication around the issue (Kaltenborn et al. 2017).

The environmental problem has been investigated widely in terms of political views, leaving a gap in the literature focused on culture (Smith et al. 2017). As beliefs in climate change largely derive from people's values (Kaltenborn et al. 2017), there is a need for the academia to explain what values shape them. In addition, Carmichael and Brulle (2018) propose that beliefs in climate change are largely influenced by the news individuals follow. Although a vast literature suggests more developed countries tend to be more concerned with environmental issues than developing countries, there is a need for studies based on comparison between the two (Pandey and Kurian 2017). Smith et al. (2017) highlighted that drawing on cross-national data can ensure a deeper insight on environmental attitudes. Hence, this research looks into Sweden as well as Russia, countries characterised by the highest and lowest position in Europe in the Climate Change Performance Index in 2018 (CCPI 2018). Further, this research focuses on millennial representatives, as they are 'the largest generation of consumers' (Naderi and Van Steenburg 2018, p.281).

As climate change is a growing environmental problem that society still considers a distant issue, there is a need to identify values that shape people's belief in the issue. As climate change introduce uncertainties hard to provide clarity regarding the issue, climate change issue means different to different individuals have different beliefs and values (Hulme, 2009). Therefore, this research aims to investigate and compare the impact of human values on Millennials' climate change belief in Sweden and Russia. This also includes exploring the extent to which news readership moderates the relationship between human values and climate change beliefs among Millennials in Sweden and Russia.

The key theory of this study is basic human values, as it has proven in previous research to be of great significance to the topic of climate change (Poortinga et al. 2012; Kaltenborn et al. 2017). However, there is a need to test them against specific age groups as well as countries to see how the values change. Hence, the ten basic values need to be tested against each country for millennials. Moreover, cultural theory of risk argues that environmental concerns are framed by the culture and it is the cultural context that shapes values (Rippl 2002). For example, depending on the context, fear can either lead to engagement or denial. The influence of news can be supported by the media consumption theory and theory of social representation, with the second one suggesting media and society assign representations based on scientific messages (Höijer 2010). Tools that amplify this creation of meanings are framing theory and confirmation bias. This study will not only enrich the literature on the climate change beliefs in Russia and Sweden but also indicate the areas of further research for these and other countries. On an industry level, the research will inform the creation of awareness campaigns and suggest specific guidelines for the two countries under investigation.

LITERATURE REVIEW

Climate change and the cultural theory of risk

Cultural theory of risk was introduced by Douglas and Wildavsky to explain the impact

of values and culture on risk (Rippl 2002). McNeeley and Lazrus (2014) explain it is a tool that helps understand the different ways of framing issues and 'how those different framings create respective ''voices'' about climate change risks and responses in various public forums' (2014, p.507). It holds a notion that culture is dynamic and so do people change their risk perceptions depending on context and experience (Bellamy and Hulme 2011).

As climate change is one of the key challenges facing today's society (Kaltenborn et al. 2017), a lot of research has been done on the impact of political views on the climate change attitudes (Smith et al. 2017). In recent years, a greater attention of authorities and policy makers has been given to environmental problems (Ali et al. 2018). Nevertheless, there is an argument that the nature of climate change is different to other environmental issues such as pollution or wastage, as the effects are more complex and less apparent (Smith et al. 2017). This can be supported by research that shows people tend to consider climate change as a distant issue, as it does not impact them directly (Kaltenborn et al. 2017). Further, Graybill (2013) concludes that the public pays more attention to issues of more immediate effects that are socio-economically or politically critical. Hence, the theoretical explanations for fear responses might be crucial in understanding beliefs in climate change. According to Fielding et al. (2012), the messages that are met with the sense of low self-efficacy may lead to denial or even defensive avoidance of climate change. It builds upon a study by Feinberg and Willer (2011) that presented respondents with both, dire and more positively framed messages on global warming, where the first ones were met with greater denial. This is particularly important, as denial towards the climate change has been growing in several countries over the past few years (Kaltenborn et al. 2017).

Smith et al. (2017) argue that the importance with which individual approaches environmental issues depends mainly on its education and political partisanship. Furthermore, the scholars state pro-environmental attitudes are more prominent among those of high income as well as young, well-educated and female individuals. On the contrary, Carmichael and Brulle (2018) present a different view, suggesting the beliefs on climate change are not just dependent on these characteristics but more importantly on the news individuals follow.

The notion that more developed countries tend to be more pro-environmental (Smith et al. 2017) can be supported by the example of Sweden. Characterised particularly by high performance emission category, the country ranks fourth in the Climate Change Performance Index (CCPI 2018). The first three positions in the ranking remain unoccupied, as no country has managed to prevent the climate change (CCPI 2018). Despite Sweden's high position in the ranking, Ek et al. (2016) emphasised a need for increased public awareness regarding climate change with a focus on flooding.

Although Russian government's aim was to be a global leader in the process of addressing climate change (Sharmina et al. 2013), the country ranks 53rd in the CCPI (CCPI 2018). Experts suggest the Russian Federation expresses low engagement in climate change activities and lack of appropriate measures (CCPI 2018). The country is considered to be more focused on the presence and the closest future, therefore on political, socioeconomic and cultural issues (Graybill 2012). Graybill (2012) further

explains in her research that these factors tend to overshadow debates on climate change. Keeping its strong position among countries of highest levels of emissions, Russia is also one of the biggest distributors of fossil fuels (Sharmina et al. 2013). These insights would align with the study by Smith et al. (2017) suggesting that former socialist countries are less likely to support environmental causes and focus on developing the economy instead.

As a vast amount of literature has focused on political views, Kaltenborn et al. (2017) suggest, more attention should also be paid to the cultural and social processes impacting climate change beliefs. Although the role of culture in understanding climate change is still understudied, McNeeley and Lazrus (2014) emphasise its criticality.

The basic theory of human values

As Kaltenborn et al. (2017) emphasise, values and worldviews are essential in understanding climate change. Haralambos and Holborn (2000) define values as things people believe are desirable and important to pursue. The basic theory of human values 'identifies ten motivationally distinct value orientations and specifies the dynamics of conflict and congruence among these values' (Schwartz 2006, p.2). These have proven to be crucial in determining the climate change engagement levels (Corner et al. 2014). Knoppen and Saris (2009) consider the values model by Shalom Schwartz to be one of the most comprehensive but also validated in many cross-cultural studies. It comprises of ten basic values: benevolence, universalism, self-direction, stimulation, hedonism, achievement, power, security, conformity and tradition (Knoppen and Saris 2009). Davidov et al. (2008) argue that some of those values are strongly related to each other and they must be modelled together and so they fall into specific categories: benevolence and universalism into self-transcendence, security, conformity and tradition into conservation, hedonism, power and achievement into self-enhancement, self-direction, stimulation and hedonism into openness to change. Some others can however also conflict with each other, such as tradition values with hedonism, as setting priorities in order to pursue a certain goal would differ (Bardi and Schwartz 2003).

Further, research has shown that attitudes towards climate change are largely related to people's values, such as security, altruism or equality (Kaltenborn et al. 2017). Additionally, previous research has shown that self-transcendence values predict individual's engagement in climate change issues (Poortinga et al. 2012). Hence, there is a need to explore what values have the biggest impact on millennials' belief in climate change in different countries. Studies in the past have shown that the perspective of an eco-friendly life seems expensive to millennials who do not tend to engage in altruistic actions regarding the environment (Carmichael and Brulle 2018). Rather, this generation focuses on messages that inform of long-term benefits (Carmichael and Brulle 2018). The literature on climate change emphasises the importance of conducting the research in a comparative manner, with a particular focus on cultural and social values people hold. Therefore, our first hypothesis suggests the following:

H1: Human values have an impact on people's beliefs in climate change.

Media consumption and representation of climate change

While media consumption theory argues media are used for informative or entertainment reasons (McFadden 2018), social representation theory further explains how people collectively make sense of issues of relevance to the society (Marková 2008). In cases like climate change, the role of media is to simplify as well as sensationalise scientific messages (Höijer 2010).

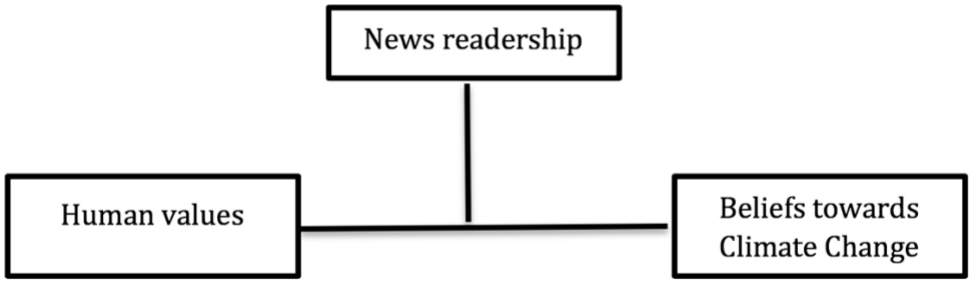
This further leads to the media and, consequently, receivers of the news to assign representations to the communicated issues that are easier to comprehend (Moloney et al. 2014). In example, Sweden depicted risks of climate change in emotional messages of wild animals being victims or even icons of the environmental problem (Moloney et al. 2014). This puts a great responsibility on news, as according to Pandey and Kurian (2017), media plays a tremendous role in emphasising the importance of climate change. Additionally, recent research showed media consumption reaches on average even 12-15 hours a day among some population groups (McFadden 2018). This however also means that the choice of media is also an essential part of shaping beliefs towards climate change. For instance, research has shown that many consider climate change as a hoax, believing it is a construct of conspiracy theories (Uscinski and Olivella 2017). Exposure to such opinions, according to Jolley and Douglas (2014), can make the public less likely to engage with the issue and cultivate scepticism instead.

Although the media consumption theory argues people select media from multiple sources (McFadden 2018), confirmation bias theory explains that individuals tend to seek sources that align with their views in order to reinforce the attitudes rather than change them (Fforde 2017). According to Bolin and Hamilton (2018), people select news that support their existing beliefs and avoid those conflicting them. Hence, they suggest that media amplifies divisions in attitudes towards the climate change.
This theory can be further reinforced by elite cues hypothesis. As Bolin and Hamilton (2018) suggest, individuals will seek opinions of those they identify with. The researchers further emphasise such opinion leaders can amplify the influence of news on climate change attitudes. Furthermore, Carmichael and Brulle (2018) argue the majority of voices in mass media raised on the climate change are politicians' rather than experts' or scientists'. This would align with the aforementioned argument by Smith et al. (2017) highlighting the significance of political views in shaping the attitudes towards climate change.

Nonetheless, Pandey and Kurian (2017) argue there has been little research on the differences in news on climate change in developed and developing countries that would apply a comparative country measure. In their study, the researchers discovered significant differences in framing news in countries on a different economic level. Studies by Nisbet (2009) and Feldman et al. (2012) drew attention to the differences between framing climate change in conservative and non-conservative media. Therefore, the framing theory of media makes a big contribution to communication around the climate change that varies with geographical locations and depends on economic situation (Pandey and Kurian 2017). According to Scheufele (1999) framing is a tool of media that helps create meanings and construct the reality. Therefore, the arguments suggest the following hypothesis:

H2: Media consumption moderates the relationship between human values and climate change.

Figure 1: Conceptual Framework



METHODOLOGY

The data used for this research paper was taken from European Social Survey (ESS) Round 8 2016. The survey was undertaken applying quantitative methods, where face-to-face Computer-Assisted Personal Interviewing (CAPI) interviews were used in all participating countries (ESS 2019a). Specific regulations are set to gain accurate data and ensure comparability between the countries.

Sampling Technique

The ESS sampling strategy allows the implementation of workable plans in all participating countries. All individuals are aged 15 and over and are residents of the specific country. The strict random probability sampling methods and aim for "effective sample size" ensure the survey reaches the international standards for reliability (ESS 2019b). These requirements are utilised for sample designs in cross-national surveys (Kaminska and Lynn 2017). The advantage of this method is eliminating bias by implementing a random selection. Therefore, every person from the population has a known chance of being chosen (Bryman 2004). Quota sampling or 'substitution' is not permitted in the surveying procedures. For the purpose of this research, we used the data sets for Russia and Sweden from ESS Round 8 2016.

Data Collection

The survey specifications, such as sampling and interviewer briefing, provide reassurance for the quality of the data and its comparability in the participating countries. The national questionnaires are designed in British English but translated to the official language of each country. The translation guidelines follow the TRAPD methodology (Translation, Review, Adjudication, Pretesting and Documentation) to meet the requirements for the translation quality assessment. The process is managed by the ESS Translation team and Translation Expert Panel (ESS 2019c).

As mentioned above, the data was collected through face-to-face CAPI interviews. They increase the degree of control over the process and decrease the chances of irrelevant

questions being asked through 'filter questions'. Furthermore, the standardisation of questions and recording of answers are improved (Bryman 2004).

Face-to-face interviews provide the best possible coverage of the target population and increase the chances of high response rates. As the interviewers' job is to persuade the respondents to take part and collect information from them, there is the possibility of affecting the survey results (Groves 2009). However, ESS tries to decrease the chances by training all interviewers in personal briefings and restricted workload (Koch et al. 2009).

Data Collection

For this research, we focused on the questions regarding public attitudes to climate change, human values and media in Russia and Sweden. The module on climate change, released for the first time in 2016, uses Value-Belief-Norm model as a framework (Stern et al. 1999). The VBN model strives to connect people's ecological views and environmental values to personal norms, which might lead to conservation behaviour (Kaiser et al. 2005). This paper assigns beliefs on climate change as a dependent variable. We look at "beliefs in the reality of climate change" or, as described by Rahmstorf (2004), trend scepticism (ESS 2016b).

The survey uses Schwartz's 21-questions measure of 10 human values to categorise the participants based on their basic values (Davidov et al. 2008). The questions are double-barreled, gender matched and measured on a Likert-type six-point rating scale ranging from 'very much like me' to 'not like me at all' (Davidov 2010). It is used to check the intensity of feelings about a certain topic. Participants are asked to indicate their level of agreement with the provided statements (Bryman 2004). Combined with Stern's VBN model on climate change beliefs, human values might drive people's behaviour towards environmental issues. Therefore, they undertake the role of independent variables in this report.

Lastly, we take newspaper readership into consideration in both countries. The question is open-ended and asks about the number of minutes spent on watching, reading or listening to political or current affairs news (ESS 2016a). Used as a moderator, we want to examine if media has an influence on the relationship between human values and climate change beliefs. It is a critical aspect of understanding social attitudes (Mondak 1995).

Descriptive statistics

Before the analysis, the data for both countries was checked and cleaned from incomplete responses regarding climate change, human values, news readership and all the control variables (age, gender, education and employment relation). Gender was measured as 1=male and 2=female. Dummy variables were created for Millennials and people with higher education (0=no; 1=yes). There were 1711 responses from Russia and 1395 responses from Sweden considered for this report. The population sample has a relatively even split between male and female (Sweden =50.5%, Russian =56.7%) representatives. The age group under investigation, Millennials- Russia (31.9%), Sweden

(19.6%).

Reliability and Validity

Exploratory factor analysis (EFA) is a statistical method to examine data and the structure of factors to be explored. However, the biggest disadvantage is the level of subjectivity that can appear from the many methodological decisions that need to be taken for a single analysis, and the accuracy of the results depending on those decisions (Henson and Roberts 2006). Therefore, for this paper we calculated the Cronbach Alpha as it is "the most widely used measure" for reliability (Hair et al. 2014, p.123). The agreed low limit for Cronbach Alpha is 0.60 in exploratory research and it shows moderate reliability (Hinton et al. 2004; Hair et al. 2014). As our independent variable, human values, is dimensional we ran the Cronbach Alpha test for all four types of human values (Davidov et al. 2008). Table 1 and 2 shows the Cronbach Alphas and the satisfactory levels for both samples. The zero-order bivariate correlations analysis for both countries is presented below (Hair et al. 2014). It can be seen that Self-Transcendence human values have positive correlation with climate change beliefs in both Russia and Sweden. However, due to the negative correlation of Conservation human values and climate change in Sweden, we can infer that people, who are conservative are less likely to believe in climate change. An interesting finding is that Millennials in Russia have a positive correlation, but Millennials in Sweden have a negative correlation with climate change beliefs. Moreover, a negative correlation can be noticed in education in Sweden, meaning that people with a higher education are less likely to believe in climate change.

Table 1: Means, Standard Deviations, and Correlation in Russia

Correlations												
	Mean	Std. Deviation	1	2	3	4	5	6	7	8	9	10
1.ClimateChange	1.83	0.890										
2.Self-Trans	2.47	0.812	.137**	**(.748)**								
3.Conservation	2.59	0.804	.087**	.656**	**(.720)**							
4. Self-Enhancement	3.07	0.964	0.025	.234**	.149**	**(.729)**						
5. Openness Change	3.15	0.987	0.028	.263**	.068**	.796**	**(.790)**					
6. News	76.18	79.726	-0.029	0.008	-0.030	.153**	.121**					
7. Millennials	0.32	0.466	.088**	.051*	.126**	-.276**	-.285**	-.138**				
8. Education	0.36	0.481	-0.028	0.015	.077**	-.146**	-.135**	-.053*	.183**			
9. Gender	1.57	0.496	-.118**	-.072**	-.079**	.079**	.084**	-.066**	-.195**	0.046		
10. Employment	1.09	0.321	-0.024	-0.012	.061*	-.108**	-.117**	-0.011	0.037	.072**	-.064**	

*. Correlation is significant at the 0.05 level (2-tailed). / **. Correlation is significant at the 0.01 level (2-tailed). Cronbach alphas in bold

Table 2: Means, Standard Deviations, and Correlation in Sweden

Correlations												
	Mean	Std. Deviation	1	2	3	4	5	6	7	8	9	10
1. Climate Change	1.45	0.579										
2. Self-Trans	2.03	0.603	.171**	**(.667)**								
3. Conservation	3.10	0.794	-.117**	.302**	**(.654)**							
4. Self-Enhancement	3.53	0.809	0.011	.226**	.280**	**(.724)**						
5. Openness change	2.86	0.805	.065*	.369**	.078**	.663**	**(.728)**					
6. News	71.10	89.385	0.019	-0.029	-0.022	.084**	.062*					
7. Gender	1.50	0.500	-.080**	-.146**	-0.010	.088**	0.026	-0.038				
8. Employment	1.15	0.406	0.052	-0.004	0.008	-0.011	-.054*	0.052	-.124**			
9. Education	0.27	0.444	-.172**	-.117**	.145**	-0.041	-0.009	-0.002	.137**	-.084**		
10. Millennials	0.1957	0.39688	-.101**	-.123**	0.028	-.193**	-.152**	-.115**	0.026	-.100**	.067*	

*. Correlation is significant at the 0.05 level (2-tailed). / **. Correlation is significant at the 0.01 level (2-tailed).

ANALYSIS AND FINDINGS

Hypothesis 1 was tested using linear regression, as it links the independent with the dependent variable and makes a prediction (Hayes 2013). For hypothesis 2, moderation analysis through PROCESS plug-in and Johnson-Neyman test was conducted (Hayes 2013).

Hypothesis 1 expects human values to have an impact on people's beliefs in climate change. As human values are a dimensional variable, we decided to run a linear regression with all dimensions and then create individual models. Self-Transcendence human values were significant in both countries (Russia: β=0.143, p=.000; Sweden: β=0.186, p=.000) (Table 3,4, model 1). As it is a positive coefficient, it means that people who have those type of values believe in climate change. However, from the R-square values, we can see that only 3.7% in Russia and 8.2% in Sweden from the total variation of climate change can be explained by the independent variables – human values. Ran individually, all types of human values in Russia are significant with positive coefficients towards climate change beliefs. An interesting finding in Sweden is that people, who are not conservative, are more likely to believe in climate change (Table 6, model 3; β=-0.070, p=.000). Furthermore, insignificance was found in Self-Enhancement values in Sweden (Table 4,model 4; p=.789). Looking at the control variables, we can infer that Millennials in Russia believe in climate change (positive β and p>.001), whereas Millennials in Sweden have a negative coefficient towards this dependent variable. Also, Table 4 shows negative relationship between higher education and climate change beliefs in Sweden.

Hypothesis 2 tries to determine if media consumption modifies the relationship between human values and climate change by using PROCESS in SPSS 25. Table 5 shows that the interaction between news and the different dimensions of human values is insignificant, meaning that hypothesis 2 for Russia is not supported. However, in Table 6, Model 1 we can see a significance (p=.0069) between news and Self-Transcendence values in Sweden, which means the moderator modifies the relationship in a positive way. It means that people, who own these values and read the news are more likely to believe in climate change

Means Difference Test

As this research paper uses samples from two different countries, a two-sample t-test needs to be done to test the difference between means (Hair et al. 2014; StarTrek 2019). We are testing a null hypothesis, namely, if the mean of Russia population and the mean of Sweden population are equal.

With the t=14.3396 and p>.9999, which is higher than the significance level of 0.10, the null hypothesis can be accepted. Therefore, there is no significance difference between the two populations. As the data was taken from ESS, we can trust that the same sample technique was used and there was no experimental error. That means that the two samples can be analysed together.

Table 3. Regressions Table for Hypothesis 1 (Russia)

	Model 1		Model 2		Model 3		Model 4		Model 5	
N.1711	DV: Climate Change		DV: Climate Change		DV: Climate Change		DV: Climate Change		DV: Climate Change	
	β	S.E.	β	S.E.	β	S.E.	β	S.E.	β	S.E.
Constant	1.791***	0.1482753	1.825***	0.1275288	1.983***	0.1268678	2.032***	0.1349907	2.014***	0.1355288
Gender	-0.172***	0.044	-0.170***	0.044	-0.177***	0.044	-0.188***	0.044	-0.188***	0.044
Millennials	0.148***	0.050	0.136***	0.047	0.130***	0.048	0.169***	0.049	0.172***	0.049
Education	-0.063	0.045	-0.067	0.045	-0.072	0.045	-0.056	0.046	-0.056	0.046
Employment	-0.073	0.067	-0.081	0.066	-0.097	0.067	-0.074	0.067	-0.072	0.067
Self-Trans	0.143***	0.036	0.139***	0.026						
Conservation	-0.016	0.036			0.084***	0.027				
Self-Enhance	0.010	0.037					0.046**	0.023		
Openness to Change	0.007	0.037							0.050**	0.023
R-square	0.037		0.036		0.026		0.023		0.023	
Adjusted R-square	0.032		0.034		0.023		0.020		0.020	
F-test	(8)8.139p<.001		(5)12.905p<.001		(5)9.150p<.001		(5)7.971p<.001		(5)8.139p<.001	

Note: p > .001***; p > .01**; p >.05*; p > .10 †

Table 4. Regression analysis for Hypotheses 1 (Sweden)

	Model 1		Model 2		Model 3		Model 4		Model 5	
N.1395	DV: Climate Change		DV: Climate Change		DV: Climate Change		DV: Climate Change		DV: Climate Change	
	β	S.E.	β	S.E.	β	S.E.	β	S.E.	β	S.E.
Constant	1.489***	0.1101586	1.258***	0.0928406	1.793***	0.0910654	1.601***	0.0964758	1.465***	0.0907437
Gender	-0.037063	0.031	-0.040371	0.031	-0.066**	0.031	-0.061**	0.031	-0.064**	0.031
Millennials	-0.090**	0.039	-0.103***	0.038	-0.124***	0.038	-0.129***	0.039	-0.114***	0.039
Education	-0.150***	0.035	-0.187***	0.035	-0.186***	0.035	-0.204***	0.035	-0.204***	0.035
Employment	0.049	0.037	0.041	0.038	0.036	0.038	0.033	0.038	0.039	0.038
Self-Trans	0.186***	0.029	0.135***	0.026						
Conservation	-0.115***	0.022			-0.070***	0.019				
Self-Enhancement	0.000	0.027					-0.005	0.019		
Openness to Change	-0.001	0.027							0.039**	0.019
R-square	0.082		0.060		0.050		0.041		0.044	
Adjusted R-square	0.076		0.057		0.047		0.038		0.041	
F-test	(8)15.395p<.001		(5)17.701p<.001		(5)14.615p<.001		(5)11.935p<.001		(5)12.790p<.001	

Note: p > .001***; p > .01**; p >.05*; p > .10 †

Table 5: Regression model with news as moderator (Russia)

	Model 1		Model 2		Model 3		Model 4	
N.1711	DV: Climate Change		DV: Climate Change		DV: Climate Change		DV: Climate Change	
	β	S.E.	β	S.E.	β	S.E.	β	S.E.
Constant	1.825***	0.1275288	1.983***	0.1268678	2.032***	0.1349907	2.014***	0.1355288
Gender	-0.170***	0.044	-0.177***	0.044	-0.188***	0.044	-0.188***	0.044
Millennials	0.136***	0.047	0.130***	0.048	0.169***	0.049	0.172***	0.049
Education	-0.067	0.045	-0.072	0.045	-0.056	0.046	-0.056	0.046
Employment	-0.081	0.066	-0.097	0.067	-0.074	0.067	-0.072	0.067
Self-Trans	0.139***	0.026						
Self-TransxNews (Interaction)	-0.0003	0.0003						
Conservation			0.084***	0.027				
ConservxNews (Interaction)			-0.0003	0.0003				
Self-Enhance					0.046**	0.023		
Self-EnhxNews (Interaction)					0.0002	0.0002		
Openness to Change							0.050**	0.023
ChangexNews (Interaction)							0.0004	0.0003
R-square	0.0379		0.0272		0.0245		0.0258	
F-test	(7)9.595p<.001		(7)6.798p<.001		(7)6.104p<.001		(7)6.453p<.001	

Note: p > .001***; p > .01**; p >.05*; p > .10 †

Table 6: Regression model with news as moderator (Sweden)

	Model 1		Model 2		Model 3		Model 4	
N.1395	DV: Climate Change		DV: Climate Change		DV: Climate Change		DV: Climate Change	
	β	S.E.	β	S.E.	β	S.E.	β	S.E.
Constant	1.258***	0.0928406	1.793***	0.0910654	1.601***	0.0964758	1.465***	0.0907437
Gender	-0.040371	0.031	-0.066**	0.031	-0.061**	0.031	-0.064**	0.031
Millennials	-0.103***	0.038	-0.124***	0.038	-0.129***	0.039	-0.114***	0.039
Education	-0.187***	0.035	-0.186***	0.035	-0.204***	0.035	-0.204***	0.035
Employment	0.041	0.038	0.036	0.038	0.033	0.038	0.039	0.038
Self-Trans	0.135***	0.026						
Self-TransxNews (Interaction)	0.0009**	0.0003						
Conservation			-0.070***	0.019				
ConservationxNews (Interaction)			0.000	0.0002				
Self-Enhance					-0.005	0.019		
Self-EnhxNews (Interaction)					-0.0001	0.0002		
Openness to Change							0.039**	0.019
ChangexNews (Interaction)							-0.0002	0.0002
R-square	0.065		0.050		0.041		0.045	
F-test	(7)13.770p<.001		(7)10.434p<.001		(7)8.547p<.001		(7)9.232p<.001	

Note: p > .001***; p > .01**; p >.05*; p >.10 †

DISCUSSION

The aim of this research was to investigate and compare the influence of human values on Millennials' climate change beliefs in Sweden and Russia. This comparative study also checked if news readership modifies this relationship. The findings were based on the Russian and Swedish data sets from the ESS Round 8 2016.

As mentioned before, values are crucial to understanding climate change (Kaltenborn et al. 2017) and there is a need to explore this area in different countries. This study has found that human values are a significant indicator to climate change beliefs. The one type that stood out in both countries was Self-Transcendence with a positive correlation to climate change beliefs. This finding supports Poortinga et al. (2012) who state that this type of values predicts people's engagement in environmental issues such as climate change. According to the results, Millennials in Russia, who hold Self-Transcendence values are more likely to believe in climate change. However, the opposite can be seen in Sweden where Millennials do not tend to believe in climate change. The later finding can support Carmichael and Brulle (2018), who explain that Millennials do not engage in issues regarding the environment because prefer long-term benefits. Therefore, this gives environmentalists and communication practitioners the opportunity to distribute better targeted messages regarding climate change to people, holding these values.
Based on our findings, there is a very minimum impact of news readership on the relation between human values and climate change. This disproved our second hypothesis but also contradicts the study of Carmichael and Brulle (2018) that argues beliefs on climate change are shaped by the news individuals read and watch. However, it does not challenge the research from Pandey and Kurian (2017), stating that media plays a vital role in promoting the importance of climate change. Nevertheless, we can infer that watching or reading news might not be effective in capturing Millennials' attention anymore. With media being consumed around 12-15 hours a day (McFadden 2018), there is a huge opportunity for scientists and marketing professionals to engage with this age group. They should also consider how the message is being framed (Scheufele 1999) because the cultural context shapes values (Rippl 2002) and as seen in this paper, human values have a significant correlation with climate change beliefs. Therefore, the choice of facts and opinions is very important for campaigns as cultivating scepticism should be avoided. This research paper contributes to an extent to Pandey and Kurian (2017) request for comparative studies on news on climate change in developed and developing countries. However, there was no significance between news readership and climate change beliefs in Sweden and Russia. This is one more reason why a different media tool should be implemented when targeting Millennials on environmental issues.

CONCLUSION

This comparative study answered the research questions and showed that human values have an impact on climate change beliefs, but news readership does not modify this relation significantly. It was revealed that Self-Transcendence is the common human value in both countries that has a positive correlation with climate change beliefs. The chosen group, Millennials, is significant but has a different relation in the two countries.
This study investigated the impact of human values on climate change beliefs. Further, the research examined the influence of news readership on this relationship. The data on two countries of a different level of engagement in environmental issues allowed for a comparative analysis.

An emerging conceptual framework (see Figure 2) has been developed from analysis of extant literature to provide a possible explanation of concepts relevant to consumers' trust. Table 1 provides a definition of each antecedent within the framework. The framework guides the data collection but is not intended to constrain discussion of emerging ideas.

THEORETICAL IMPLICATIONS AND FINDINGS

This research enriched the already existing literature on climate change and values. However, drifting away from political views, it also offered a new angle that considers the impact of news readership on shaping these values. The study has provided the academia with important insight on what values shape beliefs in climate change in both countries. As previously discovered in literature, Self-Transcendence tends to be the value of the strongest connection with environmental problems (Poortinga et al. 2012). Our study proved the accuracy of this notion for Sweden as well as Russia. However, in terms of some other values the research indicated opposing results. Conservation proved to have a positive impact on shaping beliefs in climate change in Russia, whereas it was found to be contrasting Sweden. People living in this Nordic country and holding Conservation values are less likely to believe climate change is happening.

The contrast in results can mean several things, such as the creation of meanings happens in different countries by different bodies. Hence, people's understanding derives from a diversity in framed messages, depending on a cultural context.
The philosophical approach of interpretivist epistemology (Bryman 2015) underpinned this research paper. Using an interpretivist standpoint enabled the researcher to understand the participants' views from their perspective (Daymon and Holloway 2011). This stance is considered appropriate as the researcher sought to understand subjective meaningful experiences (Ritchie and Lewis 2003) regarding consumers' experience of the automotive purchasing process.

MANAGERIAL IMPLICATIONS

The results of this study can inform the creation of awareness campaigns. These, considering the growing influence of climate change on the world, can be growing in scale in the next years. Further, this project proved approaching the global audience as a whole will be ineffective in communicating the significance of the issue. Therefore, there is a need for country- and age-specific insights in order to build effective awareness campaigns. With the knowledge of what human values are relevant in shaping beliefs in climate change in specific countries, campaign messages can be built targeting these specific beliefs. Hence, this study proved environmental campaigns appealing to Conservation values would be more effective in Sweden rather than Russia. Additionally, news can have a positive effect on the relationship between Self-Transcendence and climate change beliefs.

LIMITATIONS

The limitations of the study mainly involve its scope. Due to time constraints, the

research had to be limited to only two countries as well as one specific age group. Another limitation was the use of ESS datasets instead of conducting our own research, as this meant we had no control over the data collection stage.

These findings for Russia and Sweden open doors for an investigation in other European countries, on different age groups or specific gender. Although media use has a minimal influence on the relationship between human values and beliefs in climate change in Sweden and none in Russia, it frames a question whether it can shape values related to climate change in other countries. This is an unstudied area of research, even though some literature infers the significant impact of news on the issue.

Moreover, as our study suggests, different values shape beliefs in climate change in different countries. Hence, this leaves a wide area for research. In addition, further research can focus not just on beliefs but also attitudes and behaviour towards this problem.

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