FACULTY OF SOCIAL SCIENCE

GENDER DYNAMICS IN MEDIA-DRIVEN BELIEF POLARIZATION

– Disentangling reinforcing processes behind media usage and perception of societal issues

Lisa Axelsson

Essay/Thesis:	30 hp
Program and/or course:	MK2502
Level:	First Cycle
Semester/year:	ST/2020
Supervisor:	Adam Shehata
Examiner:	xx
Report no:	xx (not to be filled in by the student/students)

Abstract

In academia as well as in mainstream media, people are voicing concern that a fragmented media environment, entailing an immense increase of alternative media, may motivate selective exposure, in turn leading to increasingly polarized perceptions of society among the public. Consulting the theory of reinforcing spirals (RSM), there is ample evidence for a reciprocal relationship between selective media exposure and sociotropic beliefs – potentially sparking polarization dynamics. Gaps in societal perceptions have furthermore been noted between men and women, yet never examined in a RSM context. The purpose of this study is thus to analyse whether news media usage in general – and alternative media usage in particular – can explain gender differences in sociotropic beliefs and polarization over time. To address these questions empirically, this thesis relies on longitudinal panel survey data (N=1,508). Through descriptive analyses, path analyses and cross-lagged panel analyses, it examines gendered perceptions on the issues of climate change, immigration and crime and potential gender differences in belief polarization. The main theoretical contribution of this study is ultimately an increased understanding of the dynamics of alternative media usage and issue perception over time through the synthetization of the RSM and theories of sociotropic belief formation.

Taken together, the key finding of this thesis is that gender indeed matters. The results specifically point towards: (1) substantial and significant gender gaps in sociotropic beliefs over time, (2) that disparity in media usage and interpersonal communication cannot account for these gender differences when controlling for ideology and political interest, (3) signs of reinforcing spirals between alternative media, sociotropic beliefs and interpersonal communication and finally (4) gender contingent differences in tendency of polarization through RSM.

Keywords: Reinforcing spirals, selective exposure, media effects, alternative media, gender gap, interpersonal communication, belief polarization.

Wordcount: 24 018 excl. references, appendices and abstract. 30 837 in total.

Foreword

This thesis is the final work of my master's degree in political communication. It serves as documentation of my research during the study, which was made from January 2020 until May 2020. It presents the results of a study examining reinforcing processes between media usage and issue perception. It specifically analyses whether alternative media usage can explain gender differences in sociotropic beliefs and polarization over time.

It was a real learning experience, and I had fun digging into a subject which remains largely uncharted. However, it was also a road paved with unexpected problems and setbacks, foremost referring to the corona pandemic.

For their help, I would like to thank the following persons in particular:

Associate Professor Adam Shehata, thesis supervisor, to whom I owe many thanks for teaching me how to perform high-quality science. His incontestable passion for this subject rubs off, and for all his advice, feedback and patience I am ever grateful. This thesis would not have been possible without his guidance.

Angelica Cöster, for her collaboration and support, relying on the same panel data for her thesis.

I would also like to thank my partner-in-crime, Alex, for his encouragements to take on this study and putting up with me for the past six months, spending many evenings and weekends away from home or hidden behind my computer.

University of Gothenburg

Department of Journalism, Media and Communication

May 2020

Table of content

1 Introduction

In summaries of the past decade, polarization is the big trend-word. In media as well as academia, citizens are described as standing in their respective corners, scattered in digital and political filter bubbles. On the editorial page at a leading Swedish newspaper, the 10th century was asserted as “[T]he time of division, polarization and disintegration” (Dagens Nyheter, 31/12-19). The domestic political commentator of public service television declared flatly, “Increasing polarization in important political issues risks reducing confidence in the parliamentary parties” (Knutson, 1/1-2020) and scholars have further declaimed such premise: ”[P]olarization militates against social and political stability by reducing the probability of group formation at the center of the opinion distribution and by increasing the likelihood of the formation of groups with distinctive, irreconcilable policy preferences.” (DiMaggio et al., 1996, p. 693). However, polarization levels are not only increasing in terms of attitudes and opinions toward social issues, but also in terms of perceptions of reality (Kahan, 2015). A society in which people have vastly different perceptions of reality is more polarized and potentially more conflict-ridden, than a society in which the absolute majority have a remotely shared perception of the state of affairs. Where there are different perceptions of the situation – there is also room for conducting opinion or politicizing disagreements (Nordin & Oscarsson, 2015).

While most scholars studying polarization processes, attitude or perceptions related, often focus on aggregate level developments, either within or between countries, this thesis will argue that there are reasons for academia to examine men and women as subjects of subgroups of polarization. Political observers have noted a growing "gender gap" in electoral behaviour since 1980 (DiMaggio et al., 1996) and findings from Swedish survey polls finds increasing political polarization levels between men and women, demonstrating that women and men are positioning themselves farther apart on the political left-right scale compared to previous surveys. While women appear to become more left-leaning, men are becoming increasingly right-leaning (Naurin & Öhberg, 2019). If differences in voting patterns, nevertheless, reflect divergence in perceptions of reality remains contested. Previous research has demonstrated gender differences in various values and attitudes (Beutel & Marini, 1995) and indicated gender effects on perception formation on several issues in society (Nordin & Oscarsson, 2015). If

there indeed is a growing gender gap, extending to the perception of reality, this could potentially trigger yet another dimension of the polarization complexity.

Moreover, these processes have in an abundance of social science disciplines throughout the past century been found to relate to people's media use (e.g. Slater, 2007, 2015; Delli Carpini et al., 2004). The media environment is, nevertheless, changing rapidly. This change entails a proliferation of media sources and fragmentation of the media audience (Dahlgren et al., 2019). Like many other western countries, Sweden has experienced a decline of traditional news media consumption (Blekesaune et al., 2012), and several alternative news sources, such as Nyheter Idag, Fria Tider and Samhällsnytt, have emerged (Holt, 2018). These outlets many times provide alternative worldviews and content that explicitly challenge the traditional media agenda (Shehata et al., 2020). This transition has raised concerns related to how increasing media choice influences selective exposure and how increasing selective exposure might influence political beliefs, attitudes and behaviours – culminating fear of polarization. Is it possible that the changing media environment can explain parts of the gender gap in perceptions of reality? Even though this query has been of analytical foci yet, there is reason to expect this prediction is correct. This overbridging hypothesis – with research on reinforcing spirals model and sociotropic belief formation as its benchmark – will be the focus of this thesis.

1.1 Studying reinforcing spirals in sociotropic beliefs

Academia seemingly agrees upon that the supply of politically biased news outlets has increased (Holt, 2018; Dahlgren et al., 2019; Stroud, 2011) and that people, when allowed to choose among a wide range of media, tend to opt for sources which are in line with their own pre-existing beliefs and opinions (Dvir Gvirsman, 2014; Knobloch & Hoplamazian, 2012). Yet, there is doubt concerning whether selective exposure leads to increasing polarization (Levendusky, 2013; Prior, 2013).

Theoretically, the most relevant model for studying the process of selective exposure to alternative media and its effects is the reinforcing spirals model (hereafter denoted as RSM). While the model suggests that selective exposure to attitude-congruent content and media effects ought to be considered as "two components of a larger dynamic process by which such social identities, attitudes and behaviors are maintained" (Slater, 2015, p. 371), this thesis will

argue that the model is equally fit to examine processes of sociotropic beliefs formation, and that such focus serves a purpose both in the context of RSM and polarization. Most studies, namely, concentrate on public attitude to gain an understanding of political polarization processes, as attitudes is a central concept to study behaviour (Brousmiche et al., 2016). However, it fails to understand how such attitudes are formed in the first place. The traditional way of conceptualising the link between beliefs and attitudes is to view beliefs as causally prior to attitudes, as some scholars suggest beliefs and evaluations of some attributes compose an attitude (e.g., Brousmiche et al., 2016). Most conventional, though, is to focus on the reciprocal causal direction of attitudes and beliefs. Thus, an individual's perception of reality may be a core component when that person forms an attitude toward a societal issue – just like a person's attitude may influence how he or she perceives society. When studying polarization processes, it therefore seems equally important to examine people's belief formation and maintenance.

1.2 Gender differences in the RSM

Despite research demonstrating that there is a persistent gender gap in media selection patterns (Knobloch-Westerwick & Hoplamazian, 2012) and that alternative media in a Swedish context seems to mainly function as platforms for men (Holt, 2018), research has not yet studied how or if men and women are affected differently by the changing media environment. There is still lacking research on whether men and women are equally susceptible to media messages – although sex- and gender-related traits have been suggested to work as a key mediator for emotional and cognitive responses to news- and other media content (Knobloch-Westerwick & Alter, 2007). Accordingly, gender has neither been incorporated in a focal relationship with the RSM. This thesis ultimately intends to answer if differential media selection and effects between men and women can explain gender differences in perceptions.

If men indeed are more likely to use alternative media than women, following the expected gender-oriented media selection differences, such exposure may according to the RSM, lead to increasing division in men's and women's perception of reality in what may be described as a belief polarization process. This, in turn, should lead to even more alternative media use among men, in a mutually reinforcing spiral, until a satisfactory equilibrium is reached (Slater, 2007; 2015). However, it remains unknown on what range of issues and to what magnitude alternative media can shape perceptions. Moreover, following studies indicating that men and women hold

widely different issue positions on several sociotropic phenomena, it does seem likely that these polarization processes may vary between different issues and that the concern for alternative media could be exaggerated. This motivates why this thesis will examine polarization levels towards three social issues, namely: *climate change*, *immigration* and *crime.* These issues were chosen because they are similar in the sense that they are salient on the public agenda as well as the media agenda (Boati, 2019; Furtenbach & Westerholm, 2019) – but intrinsically different in nature. Swedish alternative media platforms are recognised for principally targeting issues of immigration and crime in their reporting (Holt, 2018). While the issue of climate change is not the most salient topic among alternative media, they are still expected to use counter-frames compared to mainstream media that have been found to largely frame the issue in the same way (Shehata et al., 2020).

These sociotropic phenomena were thus chosen to examine and disentangle the reinforcing processes behind media use and issue perception, and to observe if such processes are universal or rather issue-specific. Examining this kind of cross-issue heterogeneity is a vital next step toward a more general understanding of the effects of interest (Levendusky, 2017).

1.3 Research objective and questions

One issue raised by scholars within the field of media effects is that many studies are limited in terms of understanding the mutual influence between selective exposure and attitudes or beliefs over time, as most of them are based on cross-sectional surveys, two-wave panel studies or experiments (e.g. Stroud, 2010; Feldman et al., 2014). To understand the processes of selective exposure and their effects on perceptions of societal issues, multi-wave panel surveys covering a more extended period are needed (Dahlgren et al., 2019). This thesis, thus, is a longitudinal study aiming to investigate how a limited set of perceptions about society has changed during the course of two years. In many cases, it is possible to make valuable comparisons of the results with what is known from prior studies about how opinions and beliefs have developed in various areas, such as people's approach to immigration and climate change. However, it is not necessarily the change itself that is the key focus of this thesis, but whether the perceptions of men and women are becoming more varied, and if this is related to their media consumption.

Despite indications of increasing gaps in people's perceptions of reality coupled with increasing ideological gaps between men and women, no systematic research has, as mentioned above, been devoted to synthesising reinforcing polarization processes and gender. Hence, it remains ambiguous whether the concern that selective exposure to alternative media will lead to belief polarization within the public is justified.

Empirically, the thesis uses data from a three-wave panel study conducted in Sweden over a period of almost two years, allowing for an analysis of reinforcing spirals between selective news media use and perceptions of societal issues over an extended period. By comparing the effects of selective exposure to both traditional news media and alternative media, it is possible to assess if and how the rapidly changing media environment influences men's and women's belief formation and maintenance. To examine potential gender dynamics in this process, the thesis will employ theoretical insights from the RSM and studies on gendered differences in opinion formation and media use.

Against this background, the purpose of this study is to analyse whether news media usage in general – and alternative media usage in particular – can explain gender differences in sociotropic beliefs and polarization over time. Thereby, the thesis will provide an opportunity to adjudicate among competing media effect hypotheses, while also increasing an understanding of how people form and maintain perceptions about three salient societal-level phenomena and whether gender affects this process.

The main questions which will guide the study are structured into two parts in order to capture the two key dimensions of the thesis, namely: what constitutes gendered differences in sociotropic beliefs and whether gender affects media-driven polarization. To reach the formulated aims, the following research questions were developed:

Part 1: Gendered differences in sociotropic beliefs

RQ1: How do sociotropic beliefs differ between men and women, and how do these differences develop over time?

RQ2: How do personal news media usage differ between men and women, and how do these differences develop over time?

RQ3: To what extent are gendered differences in sociotropic beliefs explained by media usage and interpersonal communication?

Part 2: Gendered differences in polarization

RQ4: To what extent is (a) the relationship between media usage and sociotropic beliefs characterized by mutually reinforcing spirals, and (b) are these reinforcement processes moderated by gender?

RQ5: Are these reinforcement processes universal or issue specific?

This thesis will begin with a theoretical overview involving an attempt to define RSM, a description of its key features and the theoretical underpinnings of polarization and theories related to gender. Secondly, this thesis will account for its methodology. In this section, most suitable research designs and methods for the dataset is identified. A demonstration of the findings will follow this section. The study ends with a discussion about the results and a conclusion.

2 Theory and background

In this section, the theoretical and conceptual underpinnings of the study are expanded upon. The study is primarily informed by polarization, reinforcing spirals model and theories of sociotropic belief formation. Polarization will foremost be conceived as a framework that allows for analyses of changes in sociotropic beliefs among the public. While the concept comprises neither a sole definition nor tools for measurement, the RSM will be utilized to link changes in sociotropic beliefs and the effects of the changing media environment, as the theory is commonly used to examine polarization processes (Slater, 2015). Theories of selective exposure and media effects (intrinsic theories of the RSM), coupled with theories of sociotropic belief formation, will aid in explaining potential gender differences in these processes. The concepts of belief and perception will be used interchangeably.

The theory section is structured to mirror the two parts dividing the research questions; gender differences in sociotropic beliefs and gender differences in polarization. This structure, which is further extended in the findings section, provides a favourable viewpoint into the relationship between gender and media-driven belief polarization.

2.1 Gendered perceptions of reality

The concept of sociotropic beliefs refers to citizens' beliefs about society (Shehata et al., 2020), and will in this study be used interchangeably with the concept of issue perception. Public opinion research has previously demonstrated that the way men and women can hold and express perceptions about the existence, severity and causes of societal-level issues – which they often have minimal knowledge of or cannot experience personally – is based on a complex set of factors (Shehata et al., 2020). Media use is among public opinion scholars emphasised as one of the most prominent factors in shaping people's perceptions of societal-level phenomena (chiefly established through research on selective exposure and media effects, elaborated on in the following sections) (e.g. Kumlin, 2004; Mutz, 1998; Shehata et al., 2020). However, Mutz (1998, p. 62) argues that there are "three other possible sources of information which may shape collective experience and opinion: rationalization based on partisan predispositions, personal experience, and interpersonal communication". Ideological or partisan predispositions are

stressed since they have been found to exert a substantial effect on how men and women perceive the character, prevalence and causes of issues in society (Lodge & Taber, 2006; Shehata et al., 2020). The impact of personal experience, suggested as the second potential source of sociotropic perceptions, is highly disputed in the literature. While some research stresses that personal experiences may have a substantial impact on societal issue perceptions given its immediate accessibility and tangibility (Shehata, 2020), others argue there is little evidence that sociotropic beliefs are formed as generalizations or extensions of people's personal life experiences (Mutz, 1998). Finally, interpersonal communication is highlighted as the fourth source of sociotropic perceptions, also is expected to relate to media usage. The expected impact of interpersonal communication will be closely examined in the subsequent section.

This thesis will take into consideration three of the main factors suggested shaping people's perceptions of societal-level phenomena, as expressed by public opinion literature on sociotropic beliefs (Kumlin, 2004; Mutz, 1998; Shehata et al., 2020). These factors are media use (selective exposure and media effects), social identity (attitude accessibility, ideology and political interest) and interpersonal communication. As this study relies on secondary data, coupled with its highly debated impacts, it will not account for personal experience. Finally, these factors will be employed to examine issue perception towards climate change, criminality and immigration.

2.1.1 The role of media

The mass media are typically considered vital when it comes to judgements of societal-level developments and is famously described by Walter Lippmann (1922) as "the window to the world outside". Media reporting is similarly emphasised and demonstrated as a source of sociotropic perceptions in the literature pool of belief formation and research on theories of agenda-setting, cultivation and framing (e.g., Kenix, 2011; McCombs, 2014; Mutz, 1998; Slater, 2007). In what ways media really affects its audience may be studied through a variety of theories. Most established is probably agenda-setting theory by McCombs and Shaw (1993), typically focusing on the influence of topics of coverage in the media on issue salience for the public as a whole. Another prominent media effect theory is framing theory. This research usually explores how media's interpretation of issues influence how member of the public

interpret these issues. These theories are, as will be further elaborated on in subsequent sections, largely intrinsic in the RSM which, in conformity with the ideas aloft, partly relies on the assumptions that media usage may influence attitudes and behaviour. While researchers have not yet explicitly examined if men and women are equally susceptible to media effects, findings suggest that for emotional and cognitive responses to news and other media content, sex- and gender-related traits work as a key mediator, in that they channel selective information intake (Knobloch-Westerwick & Alter, 2007). Nevertheless, it remains to this thesis to test whether media effects indeed are channelled differently between men and women, and if so, how this plays out.

For media effects to occur, however, people need to be exposed to such content, which within a high-choice media environment often requires some degree of selection. Men and women have in several selective exposure studies been found to largely select different media content (e.g. Knobloch-Westerwick & Hoplamazian, 2012). While men tend to be more interested than women in international affairs, news, and, women are more likely to favour social and interpersonal topics sports (The Pew Research Center, 2008). The differences remain statistically significant after controlling for a broad set of socio-demographic characteristics, such as income, education, or employment status (Knobloch-Westerwick & Hoplamazian, 2012). Knobloch-Westerwick and Alter (2007) further suggest that biological sex and gender are two of the most dominant factors when it comes to explaining alteration in media selectivity. In a cross-country setting, the news gender gap is correlated with measures of gender equality, and it is particularly abundant in countries with low scores of gender equality in politics and the economy (Benesch, 2012).

Finally, building upon theories of sociotropic belief formation and media effects in a fragmented media environment, this thesis thus focuses on the development and maintenance of sociotropic beliefs among people over time. More specifically, it analyses how one distinct component of men's and women's general media consumption – *usage of alternative online news* – influence perceptions about climate change, crime and immigration. The role of alternative media in comparison to mainstream media will be reviewed next.

2.1.2 The role of alternative media

Whereas most studies interested in the RSM and polarization processes focus on the tendency of partisan selective exposure based on pre-existing attitudes, this thesis will consider how Swedish people's media consumption – and foremost alternative media habits – affect how they formulate and maintain beliefs. In recent years, corresponding to the emergence of a high choice media environment, an immense increase in alternative media outlets has been noted (Newman et al., 2018; Holt, 2018). These outlets are characterized for positioning themselves as correctives of the mainstream news media (Holt et al., 2019) and thus provide people with an option of finding different views of the world than the one presented in mainstream media. On these outlets, news dissemination is no longer only undertaken by journalists, but also by algorithms and non-professionals (Thorson & Wells, 2016).

Historically, studies about alternative media have often taken their cue from Gramsci and the notion of hegemony. In such a setting alternative media is seen as a liberating force that gives voice to marginalized groups in the hegemonic discourse of mainstream media. While the phrase "mainstream media" foremost has been used by media scholars and by left-wing debaters like Noam Chomsky, "alternative media" has been considered "[T]he embodiment of a dream about giving ordinary citizens a way of speaking back to power." (Holt, 2018, p. 50). Moreover, their audiences have been said to constitute an interpretive community (Rauch, 2007). Alternative media, then, are sites where people sharing similar political orientations articulate their responses to particular matters or new issues.

Although users of alternative or partisan websites in several countries show a diverse profile, they tend to be older, politically interested and more partisan and ideologically extreme than the rest of the public (Stroud, 2011). They are also predominately male (Digital News Report, 2018). As alternative media aim to challenge the symbolic power of mainstream media, their audiences are expected to have low trust in mainstream media (Leung & Lee, 2014; Shehata et al., 2020). In a process of selective exposure, Tsfati and Cappella (2003) found that intense scepticism of and erosion of trust in the mainstream media also could contribute to alternative media usage. Sceptics of mainstream media today typically claim hegemonic mainstream media distort or conceal information that does not fit the "politically correct" agenda. Mainstream journalists are seen as people who for the sake of personal and commercial gains will sacrifice

accuracy and precision and, thus, not considered fair or objective in their reporting of society (Tsfati, 2003).

Since ‘mainstream media’ plays a crucial role in alternative news media’s self-perception, it is essential to understand what mainstream media constitutes. Holt et al. (2019) recognise mainstream news media as a societal system that is formed by specific legacy news media organizations. These organizations are then themselves characterized by certain – often hierarchical – organizational structures and traditional publishing routines. They enable public discourse by providing topics of general interest, which are based on facts, selected by professionals, and published following professional rules. Accordingly, mainstream news media fulfil a societal function (Holt et al., 2019). Similar to the pattern of the alternative media audience, it appears to be foremost older people who regularly use mainstream media.

Even though the Swedish media market, for instance, entails public service as well as tabloids, broadsheets and commercial channels, this thesis will argue that they still fit under the umbrella-term 'mainstream media' since they still follow traditional publishing routines and professional model based on the principles of objectivity and political neutrality. This separates them from alternative media which operate in distinctively different ways. Alternative media remain more ideologically driven than the mainstream media and generally, though not exclusively, less commercially minded (Kenix, 2011).

While Sweden indeed has several left-leaning alternative media platforms (e.g. Dagens Arena, Arbetet and Aktuellt Fokus), alternative media has in recent years foremost been associated with immigration-critical media, known for an insistently oppositional stance concerning both the media and political establishment. Following Holt’s (2018, p.52) definition, alternative media in a Swedish context refers to: “A self-assumed term that signals an opposition to traditional media (“old media”), which many of the writers in this field regard as failing to report properly on important societal issues, for example, by avoiding reporting on social problems related to immigration.” There are furthermore indications that immigration-critical alternative media (ICAM) in Sweden have a significant reach (Newman et al., 2018). Survey data presented in the Reuters Institute Digital News Report show that each of the four largest ICAM in Sweden (Fria Tider, Nyheter Idag, Ledarsidorna, Samhällsnytt and Nya Tider) reaches

around one-tenth of the Swedish online population weekly (Newman et al., 2018). This makes Sweden an interesting case for the present study. Although there are, as mentioned above, multiple alternative media platforms which are heavy left-leaning too, these are not remotely as widespread as the right-leaning alternatives (Sandberg & Ihlebæk, 2019). This yet poses a problem as to how to conceptualize and interpret the phenomenon, which will be discussed later. This study now moves on to describe the second factor suggested to shape people's perceptions of societal-level phenomena, namely social identity.

2.1.3 The role of social identity

Social identity as a factor shaping issue perception among men and women can be fractioned into numerous subcategories that largely depends on which scientific disciplinary one adheres to. In this study, social identity is allegedly captured through attitude accessibility, embodied by ideology and political interest, as proposed by the RSM and theories of sociotropic belief formation.

A central aspect of the RSM is the proposal of social cognitive mechanisms that may help explain how attitudes, or in this case perceptions, may be reinforced by choice of media exposure. Principal among these is attitude accessibility (Slater, 2015). Attitudes that are central to personal or social identity are normally chronically accessible (Fazio et al., 1989). As declared in the introduction, the current study considers the causal direction of attitudes and beliefs as reciprocal. There are several reasons why gender differences ought to be expected in attitude accessibility. Firstly, certain values predict the amount of importance attached to a specific issue. For instance, Huddy et al. (2008) argue that valuing universalism, such as social justice and concern for the broader community, predicts greater importance placed on the issue of climate change, compared to those who value power (e.g. material achievement). These universalist values are further closely linked to a leftist ideology. According to Djerf-Pierre and Wängnerud (2016, p. 221) "A leftist ideology typically identifies societal problems as collective issues/responsibilities". Moreover, universalist values and a leftist ideology have been found as more common among women (Huddy et al., 2008). Ideology is also proposed as one of the factors influencing the belief formation process by public opinion scholars. How men and women perceive the character, prevalence, causes and solutions of societal problems are suggested to largely depend upon ideological or partisan predispositions (Taber & Lodge,

2006). Ideology is further suggested as a critical cognitive tool that people use to process political information (Schreiber, 2007).

Secondly, research suggests that political interest or a cognitive orientation and interest to political affairs plays a crucial role in determining the patterns of media effects and polarization (Strömbäck et al., 2013). In today's high-choice media environment, for instance, political interest has become a more important determinant of news consumption, making the news consumption more polarized between news-seekers and news-avoiders over time (Strömbäck et al., 2013). Recognizing media as agenda-setters and with a substantial effect on sociotropic belief formation, such news consumption gaps may thus lead to belief polarization. Moreover, a large body of research documents that women, generally, are less interested, less engaged and less knowledgeable in politics than men, and these gender gaps persist even in otherwise highly egalitarian societies (Djerf-Pierre & Wängnerud, 2016). Women are also less likely to discuss politics with others or attempt to change other people's political attitudes than men (Reed, 2006).

What this means in the context of this study, is that potential gender differences in the RSM and sociotropic beliefs may be related to social identity differences. As ideology is closely linked to personal values, which in turn makes certain perceptions and attitudes more likely to become chronically accessible, men and women (ideologically different when generalising), can be expected to hold different accessibility depending on what societal issue of interest. For instance, women are expected to be more left-leaning than men and thus hold more universalist values, from which it is possible to predict that they will perceive climate change as a more urgent issue to combat. In the same way, crime and punishment is one of the most critical issues on the political agenda for right-leaning voters, making it possible to hypothesise that perceptions related to this issue more likely will be chronically accessible. Furthermore, political interest is expected to be an underlying driver of gender differences in RSM, where men are more prone to be interested in politics, hypothetically making them more likely to become part of reinforcing processes. Whether this social identity trait (political interest) is a bigger RSM-driver than ideology, remain up to this study to examine. Doubtlessly, social identity constitutes more than ideology and political interest. However, since this thesis is

utilizing secondary data, it is beyond its prospect to incorporate more elements (e.g. Big Five) relating to social identity.

2.1.4 The role of interpersonal communication

Finally, this study will examine what role interpersonal communication (IPC) plays in the formation of sociotropic beliefs and the RSM-processes introduced above. Previous studies suggest that discussions about political and societal issues with friends and family are settings where perceptions of reality are socially negotiated, verified and structured – and not only situations where information and experiences are shared (De Vreese & Boomgaarden, 2006; Schmitt-Beck, 2003; Shehata et al., 2020). However, research concerned with the interaction between IPC and reinforcing spirals processes are scarce and in the theoretical underpinning of the RSM Slater (2007; 2015) suggests that research on this topic is essential for a more comprehensive understanding of the theory.

Because of the findings mentioned aloft, academia broadly conceives that political discussion significantly influences people's attitudes, and arguably also perceptions. Nevertheless, the anticipated role of IPC differs among studies and findings point towards that IPC may both moderate and mediate the influence of mass media (Schmitt-Beck, 2003). Previous studies have found that if a network is homogeneous and a media message is congruent to this group's views, the individual exposed for the message will obtain confirmative reactions when comparing this message to any of the other groups member's position. In the opposing case of a homogeneous network and a dissonant media message, a person will always be discouraged from accepting this message. If a network is politically or attitudinally mixed, however, a person may encounter either favourable or unfavourable reactions from the IPC. Hence, the validation may lead to a negative or a positive result depending on whom is involved in the discussion. However, people tend to be embedded in homogenous environments and in close-tie interpersonal communication, which will be examined in this thesis, there is ultimately an overwhelming tendency toward homogeneity (Katz & Lazarfeld, 1955; Schmitt-Beck, 2003).

Continuing, there are reasons to suspect that interpersonal communication will have a different effect on men and women. To begin with, scholars have postulated that the direct impact of media messages may be bolstered or altered by a person's network of interpersonal

communication and that such discussions are a central explanatory mechanism of a positive feedback loop, which may lead to more extreme outcomes (Song & Boomgaarden, 2017). While a meta-analysis by Eagly (1978) found no overall sex difference in relation to persuasibility, the same study suggested that interpersonal orientation can cause women to be more susceptible to influence attempts than men. Support for the idea that women are more susceptible to influence than men is further found in a study by Harrison et al. (1991), which demonstrated that women were more responsive to the interpersonal communication behaviour of a political candidate, whereas men were more responsive to the candidate's political positions.

Additionally, research has found that people using alternative media are prone to spread such media messages to others through interpersonal social networks and social media (Howe & Krosnick, 2017). This means that individuals whom themselves would never turn to, for instance, right-wing outlet Fria Tider, may still be exposed to the messages the outlet disseminate on its platform. This is, of course, not a new idea, but was introduced almost seventy years ago via the two-step communication flows (Katz & Lazarsfeld, 1955). Likewise, a more recent experimental study on this topic found that people who do not take part of partisan media outlets but then discuss the covered topics with others, end up polarized in the same way as those who watched partisan media programmes. In other words, discussing partisan media messages can generate polarization just like exposure itself can (Levendusky, 2017). While it still remains unknown if discussing alternative media messages generate similar results, the findings demonstrated aloft seem to suggest that: (1) IPC will have an effect on issue perception, and (2) IPC may both mediate and moderate media effects on issue perception.

2.2 Gender differences in polarization – explained by the RSM

Building upon theories of sociotropic belief formation and media use, combined with the core concepts of the RSM, this thesis focuses on the development of issue perceptions over time by examining underlying drivers of gender differences in RSM. While the previous section accounted for how one distinct component of men's and women's general media consumption – usage of alternative media – coupled with social identity and interpersonal communication, may influence perceptions on three salient societal issues, the subsequent segment will elaborate on gender differences in polarization and whether the RSM can assist in explaining

such dynamics. The main theoretical contribution of this study will ultimately be an increased understanding of the dynamics of alternative media use and issue perception over time through the synthetisation of the RSM and gender.

2.2.1 Polarization as a concept

Given polarization's prominence in contemporary political and societal discourse, the literature pool provides strikingly little guidance in defining it. While polarization can relate to the strengthening of one's original position or attitude (Stroud, 2010), some scholars suggest it is the mechanism whereby political groups are moved away from the middle of the political spectrum and instead moved towards the poles of the spectrum (Dvir Gvirsman, 2014), and others maintain that is can be both a state and a process (Fiorina & Abrams, 2008). When described as a state, researchers refer to the extent to which opinions on an issue are opposed in relation to some theoretical maximum. This kind of polarization will be examined through path analyses in the findings section in order to answer RQ1, RQ2 and RQ3. Polarization as a process, on the other hand, refers to the increase in such opposition over time (DiMaggio et al.,1996) and will be examined through cross-lagged panel analyses as suggested by the RSM, in order to answer RQ4 and RQ5. By consulting the RSM for these analyses, it is possible to detect if the diffusion of perceptions is more significant among men than women as a result of their media usage (or, in other words, if men more likely to polarize than women). As many scholars fear that current polarization processes in society are – if not due to – linked to, increasing selective exposure in the high-choice media environment, a growing body of literature in communication are studying reinforcement processes between patterns of media usage and long-term, society-level effects on polarization (e.g., Feldman et al., 2014; Slater, 2007; Beam et al., 2018). Under certain contingencies, which will be elaborated on further below, the RSM suggests that an individual whom select media content that is consistent with pre-existing attitudes, ought to foster extremes of media use and attitudes, and ultimately polarization, in an ongoing chain of influence. Besides, empirical analyses reflect that people are indeed getting more extreme values and that such polarization processes may be explained by reinforcing spirals (e.g., Dahlgren et al., 2019; Song & Boomgaarden, 2017).

While gender is seldom the key variable in polarization research, differences have been documented in a vast array of studies. In relation to sociotropic beliefs in a Swedish context,

Nordin and Oscarsson (2015), found that men's and women's perceptions differ significantly with regards to discrimination of women (women perceived the issue of discrimination on the workplace as worse than men), Sweden's business climate (men perceive it as better than women) and culture of immigrants (women believed that the culture and traditions of immigrants enrich Swedish society to a higher degree than do men). Other studies have, for instance, found that women have a more positive perception of immigration and gun-control measures than men (Huddy et al., 2008).

One issue with polarization, which ought to be emphasised, is that interpreting polarization levels is, generally, a matter of judgement. Thus, to analyse polarization levels, one must be able to define it. To define polarization, one must be clear about why one is interested in it. Ultimately, the premise of this thesis is that belief polarization militates against social and political stability by reducing the likelihood of group formation at the centre of the opinion distribution and by increasing the probability of the formation of groups with distinctive, irreconcilable policy preferences. Moreover, the thesis will examine both 'between-populations polarization' and 'in-group polarization' (DiMaggio et al., 1996), meaning that foci of analysis will first of all be the differences between men and women in levels of belief polarization, and secondly polarization levels among men and women as separate groups.

2.2.2 The Reinforcing Spirals Model

As outlined above, there is a lack of studies testing if there might be so-called reinforcing spiral processes between media consumption (specifically alternative media use) and issue perceptions. The leading theory which this thesis will build on, and hopefully add to, is thus the reinforcing spirals model (RSM), which chiefly aims to understand the role of media in creating and maintaining beliefs (Slater, 2015). Since the model is somewhat complex and has many different aspects, the presentation is divided into four central aspects of the model: definition, the marriage of selective exposure and media effects, the importance of feedback loops and empirical findings coupled with theoretical gaps.

2.2.2.1 Definition

The theory was coined by Slater in 2007. RSM seeks to understand "media's role in helping create and sustain both durable and more transient attitudes, as well as behaviours associated

with those attitudes" (Slater, 2015, p. 370). While the theory only addresses attitudes and behaviours, Slater (2015) claims that these concepts also incorporates values, social identities such as ideology**,** lifestyle community, religious conviction and more transient attitudes (e.g. about social policies and other social groups). Based on the argument that belief is a core component of attitudes (Brousmiche et al., 2016), this thesis maintains that the RSM is equally fit to examine media's role in creating and sustaining beliefs.

The RSM relies on two fundamental assumptions. To begin with, media use is both the independent variable and the dependent variable, referring to media use as something shaped by social context and individual characteristics, and that this media usage may influence attitudes and behaviour. Secondly, RSM assumes that media use and effects are part of a dynamic and ongoing process. Exposure to the self-selected media, influenced by social identity and context, is consequently suggested to "influence subsequent strength and accessibility of social group identification, attitudes, and behaviors—which, in turn, will influence subsequent media use, which should continue to reinforce those associated elements of social identity, attitude, and behavior over time" (Slater, 2015, p. 372). In other words, the influence does not merely flow from alternative or mainstream media use to perceptions of societal issues, or from perceptions to alternative or mainstream media use. Rather, the effect of using specific media types should influence the strength and accessibility of certain beliefs — which in turn should influence people's media selection, leading to reinforced societal issue beliefs over time (Feldman et al., 2014; Slater, 2015).

Slater (2015) argues that there is ample evidence for effects of media-use variables on beliefs, behaviour and attitudes even after controlling for prior influences. These results he contests against that the way in which people select media content are, amongst others, a function of age, gender, prior experience, ideology, social identity and influences. These media-use variables, Slater (2007) suggests, are endogenous (subject to the influence of causally prior variables). Ultimately, from a theoretical perspective, the role of media-use variables is an intervening one and should mediate or partially mediate the influences of individual-difference variables, such as gender, age, prior experience and interests on cognitive or behavioural outcomes. To what extent alternative media consumption function as an endogenous variable,

how such usage affects societal issue-perceptions and if this process differs between men and women, remains up to this study to examine.

2.2.2.2 Selective exposure and media effects as two components of RSM

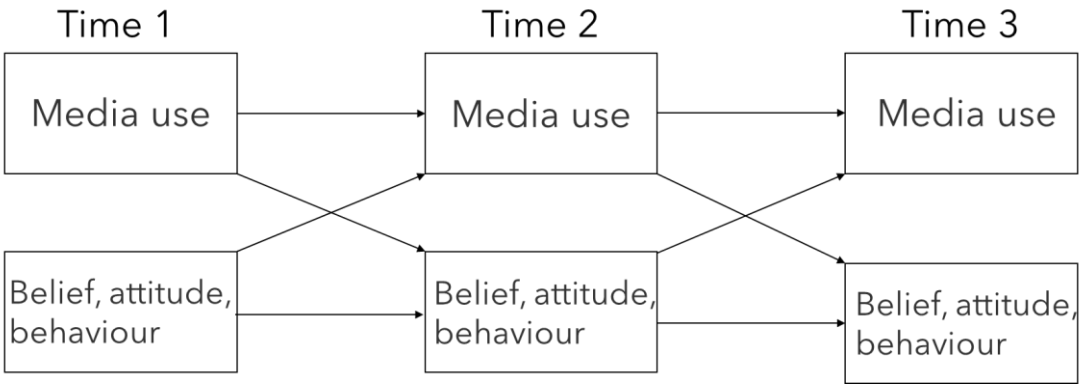
Slater (2007) suggests mediation through media-use variables as described above, for some phenomena, is a simple formulation of the relationship between media selectivity and media effect processes. Media effects may, as aforementioned, be studied through a variety of theories. While agenda-setting research normally studies the major media in society, the perspective of the RSM would suggest the importance of examining the agenda-setting influence of group-specific media (Slater, 2007), such as alternative media. The chance that such sources set issue agendas as well as frame these issues for group members is high (Slater, 2007). Framing theory is another prominent media effect theory, also described in the prior section. The spirals of selectivity and effects perspective would hypothesise that alternative media would develop and refine ways of framing issues that are consistent with the values of its 'group members'. Such frames ought to provide interpretive filters for their audience through which other mediated information will pass. They should also facilitate counterarguing of general media coverage and increase perceptions of media bias when those frames are not reflected in dominate media discourse (Vallone et al., 1985). A spirals process, thus, is likely to emerge when preferred media outlets construct frames that interpret societal issues in terms consistent with group values. Ultimately, group members should increasingly assess nongroup media content through those frames and prefer media outlets that reflect such frames.

A prime objective of the RSM is, additionally, to integrate selective exposure processes, as they serve as an essential predictor of media effects. Conversely, the model accentuates that the effects of media exposure are likely to reinforce preferences that predict media selection in the first place. The RSM propose the particular importance of the maintenance of social identity as a central aspect of uses or gratification theories (Slater, 2007). Hence, the opportunity to counterargue opposing perspectives, or, - probably more common - an affirmation of perceptions, is likely to be a central motivator of the selection of media outlet. It is therefore emphasized in the RSM that the use of a certain kind of media is likely to reinforce the preferences that led to its use in the first place, helping sustain those needs and desired gratifications. Consequently, the perspective of the RSM builds upon selectivity and uses-and-

gratifications research by including media effects themselves as indicative of such behaviours (Slater, 2007).

The spirals of selectivity and effects perspective, therefore, has two primary aspects: 1) an account for individual-level media use and influence processes over time, and 2) a perspective on how such mutually reinforcing processes of media use selection and their effects serve to sustain religious, political and lifestyle subcultures (Slater, 2007).
Finally, Slater (2007) claims that an important starting point in understanding the relationship between selectivity and media effects is acknowledging the reciprocal nature of the two. However, causal relationships do not go back and forth as the term reciprocal implies. These relationships move forward in time, influencing one another, with the probability of reinforcing or cumulative effects. Thus, in a research context, exposure at baseline must lead to an effect at the second wave that, in turn, influences exposure at the third wave. At the same time, the status of the effect at baseline should lead to exposure at the second wave, leading to the effect at the third wave.

Figure 1. A minimal path representation of reinforcing spirals as suggested by Slater (2007). While prospective prediction usually is of primary interest, a wide variety of alternative indirect paths exists.



2.2.2.3 The importance of feedback loops

According to the initial definition of the RSM, an individual whom selected media content which was consistent with pre-existing attitudes, ought to foster extremes of media use,

attitudes, and behaviours, and ultimately polarization, in an ongoing chain of influence. However, in his second article about the RSM, Slater (2015) pays more attention to why spirals typically reinforce and maintain attitudes, rather than driving attitudes and opinions towards extremes. To explain the reinforcement spiral possibilities to either continuously reinforce attitudes or to have reached a satisfying level of reinforcement, he uses the expression "positive and negative feedback loops" (p. 373). Positive feedback loops may, for instance, appear during high levels of perceived identity threat, as social group norms minimize exposure to offsetting perspectives or national cultures control exposure to such perceptions. Under such circumstances, the risk of polarization in the shape of more extreme attitudes, increases. However, Slater (2015) argues that at some point, the positive feedback loop normally must stop. Negative feedback loops, then, take place when homeostasis, which refers to how identity relevant attitudes are maintained balanced, is reached. One of the strongest and most compelling reasons spirals reach homeostasis is mere that individuals satisfice, as all people have multiple social and personal identities. One may be a libertarian, Muslim, a staunch runner, a father and a professor. However, time and attention are not infinite resources. Eventually, media content associated with one social identity and attention to certain issues comes at the cost of devoting resources to other roles and interests. Furthermore, the RSM suggests that when social identity is under threat (for instance during political campaigns), selective use of attitude-consistent content should increase until a satisfactory equilibrium is obtained. As identity threats diminish, such selectivity may be reduced (Slater, 2015).

Subsequent scholarly work has outlined a few other factors that may equilibrate or decrease societal polarization in the RSM. Dahlgren et al. (2019) stress that there, indeed, are other motivations than only personal that influence media use. Besides, selective exposure does not necessarily imply selective avoidance and in the digital environment it is probable that people incidentally encounter cross-partisan or attitude-incongruent information too. Moreover, recurring exposure to similar information might reduce the influence of the information rather than strengthening the attitude or belief (Dahlgren et al., 2019). Finally, much of such reinforcement effects are, at least in a Swedish context, hindered by relatively low overall ideological selective exposure (Dahlgren et al., 2019) and a substantial degree of cross-cutting news media online (Beam et al., 2018).

One of the core intentions of RSM is ultimately to identify environmental or other constraints that limit or amplify reinforcing spirals (Slater, 2007, 2015). Accordingly, researchers have taken contextual variation in which RSM processes take place into account, such as elections cycles and corresponding varying levels of political engagement (Song & Boomgaarden, 2017), teenagers and sexually explicit media content (Peter & Valkenburg, 2009) and partisan media exposure effects on global warming-beliefs (Feldman et al., 2014), which will be closer reviewed in the following section. However, the mechanisms through which these processes occur, or which individuals will be affected, remains largely unexamined. While men seemingly are more likely to seek out alternative media, it yet remains ambiguous if men are more responsive for polarization through these outlets.

2.2.2.4 Review of key empirical studies on RSM

Since its coinage in 2007, the RSM has been studied in several ways. Over time, the research designs have become more fine-grained and complex, covering for the flaws prior studies have displayed. Empirical investigations of the RSM within the context of selective exposure and polarization are limited and primarily focused on attitude or political polarization (Beam et al., 2018; Song & Boomgaarden, 2017; Stroud, 2010) and findings are somwehat dispersed.

Stroud (2010) conducted the first study on the RSM concerned with political polarization. By utilizing data from panel surveys gathered throughout the 2004 American presidential election, she analysed the relationship between selective exposure to partisan media content and political polarization. The study demonstrated strong evidence for selective exposure to partisan media predicting political polarization. However, evidence supporting the reverse relationship was weak. Moreover, the study was not structured so that it could measure an actual dynamic reciprocal relationship, but merely if there were effects in both directions.

Song and Boomgaarden (2017), on the other hand, modelled media use and effects as endogenous variables as they examined contextual factors that might moderate political polarization. Their results indicated that mutually reinforcing spirals were conditioned by several individual- and system-level factors, such as interpersonal discussion networks in conjunction with election contexts. More precisely, agreement or disagreement among peers within an interpersonal network will moderate the effect of polarization (Song & Boomgaarden,

2017). These results go well with those of Hutchens and colleagues (2019), who also found support for a reciprocal relationship between partisan political discussion and political polarization. Rather than mediated partisan communication, this study focused on interpersonal partisan communication. They, similar to Slater (2007; 2015) argue that interpersonal communication is an equally vital source of information as mediated information and, thus, research concerning interpersonal communication is essential for a more comprehensive understanding of the framework. To examine the association between discussing politics with like-minded and polarization and vice versa, Hutchens et al. (2019), used data from a three-wave panel gathered during 2012 and 2016 U.S. presidential campaigns. They found partial support for reinforcing spirals in such way that polarization at first wave was associated with an increase of discussions with like-minded others at the second wave, which ultimately was associated with higher levels of affective polarization at the final wave. However, a significant effect was not found when they started the measurement on political discussion.

Dahlgren et al. (2019) also found support for the possibility of the RSM resulting in polarization. The scholars studied the reciprocal relationship between selective exposure to ideology-consistent media content and political attitudes through a three-wave web panel survey in Sweden. Though the study found support for selective exposure to ideology-consistent content, there was, however, no support for selective avoidance of bipartisan news media. People who sought out partisan news were, particularly in an online environment, likely to be exposed to bipartisan media too. In relation to reinforcing spirals, the authors found that higher use of attitude-consistent news use had reinforcing effects on people's ideological leaning. These are noteworthy findings as political ideology is considered an identity-relevant attitude and hence very stable. Although substantively small, such findings further suggest that media use may indeed be a part of a continuous long-term process of identity formation throughout life (Dahlgren et al., 2019). Additionally, if effects on an identity-relevant attitude such as ideology take place, it seems likely that even stronger influences appear on other more specific policy opinion or perceptions. Such processes are nonetheless only expected to be visible over an extensive period. On the other hand, Beam et al. (2018) did not find any evidence of a partisan reinforcing spiral resulting in increased polarization. The scholars examined the mutually reinforcing relationship between Facebook news consumption and political polarization through a three-wave panel survey during the 2016 U.S. presidential campaign.

Contrary to its hypothesis, the study found that both news use on Facebook and political attitudes were quite stable throughout the campaign and even noticed patterns of depolarization in relation to Facebook news use. A potential reason for the findings, Beam et al. (2018) suggest, is that Facebook news users may be more likely to expose themselves to both partisan and bipartisan news due to social media news recommendations. This, in turn, could increase the likelihood of being more understanding of counter-partisan arguments.

In recent studies, one key issue is raised regarding specification of the RSM by Slater (2015). This involves conceptualizing selective exposure to identity-consistent content with regards to extremity versus quantity (ergo if spiralling processes lead to a selection of more attitude-extreme media content, or if it rather increases consumption). In this study, selective exposure is conceptualised with regards to quantity. Moreover, scholars stress that, as aforementioned, further attention should be devoted to the role of interpersonal communication, particularly as Song & Boomgaarden (2017) argue interpersonal agreement and disagreement may be a central explanatory mechanism of a positive feedback process that could lead to more extreme outcomes. This, too, goes for exposure to alternative media. Furthermore, what role – if any – gender plays the RSM remains unexamined. A similar research gap is also evident in the field of media effects, where scholars remain ambiguous towards whether men and women are equally susceptible to media effects. Consequently, by taking both gender and interpersonal communication into consideration (and thereby expressing receptiveness towards requests from academia), the present study may hopefully add to the theory of RSM.

2.3 The societal-level issues

There are primarily three reasons why this thesis will study the issues of climate change, criminality and immigration: (1) they are salient on the media and well as the public agenda (Boati, 2019; Furtenbach & Westerholm, 2019), (2) they are, allegedly, frequently portrayed disparately in alternative and mainstream media (Holt, 2018), and (3) perceptions are expected to differ between men and women (Beutel & Marini, 1995; Nordin & Oscarsson, 2015). A compendious review of the issues is provided below, followed by the hypothesised findings.

Climate change: or climate crisis, is arguably the most severe challenge humanity has

experienced in modern time. Given global warming and climate changes relative 'newness' and the much controversy it has provoked worldwide, it seems to be an ideal context in which to study the interplay between media use and individual-level issue perceptions. Research has, for instance, found evidence for a relationship between selective exposure to attitude-consistent information and climate change perceptions (Feldman et al., 2014; Zhao, 2009). Feldman et al. (2014) found a connection between the use of conservative media and opposition to climate regulation as well as lower belief certainty about global warming. The opposite association was found for non-conservative media users. However, the issue is deeply politicized in the U.S., causing ideologically oriented media outlets to communicate vastly different information, compared to how the issue is treated in Sweden. Even though climate change is a highly salient issue in the Swedish news media too, it is primarily framed in the same way and not remotely as polarized as in the U.S. However, it is still expected that alternative media are using counter-frames (Shehata et al., 2020). The relationship between gender and environmental concern has been extensively studied and have engaged sociological theories of gender. Gender socialization theorists stress that feminine identity emphasizes attachment, empathy and care, while masculine identity stresses detachment, control and mastery (McCright, 2010). This argument is supported by previous studies, which have shown that women are more concerned for climate change than men (McCright, 2010) and are more prone to select media related to climate disasters (The Pew Research Center, 2008). As such, it is both an empirically and theoretically interesting case for examining both RSM and gender dynamics. The severity of the problem urges integration of insights from previous gender work in the sociology of science, but also RSM to understand how and why people form and maintain their perceptions of climate change.

Criminality: Statistics from Brå (Brottsförebyggande rådet, 2019), demonstrate that the number of reported crimes has increased by 10 percent over the last ten years. Crime and penalties was one of the most important issues among electorates in the election 2018 (Novus, 2018) and is to a high degree dominating the media agenda. One in six head news in Swedish newspapers, tv and radio, revolve around criminality and the work put into combatting it (Furtenbach & Westerholm, 2019). The issue of crime is also one of the most covered topics among alternative media platforms, albeit characterized by a much more negative tonality and critical perspective compared to mainstream media (Holt, 2017). While academia has not, to the best of this

author's knowledge, explicitly studied perceptions towards crime with foci on gender differences, several studies are demonstrating a persistent gender gap in fear of crime (e.g. Huddy et al., 2008). Even though statistics show that women are less likely to be victims of both violent and nonviolent crime than men are, they are to a higher degree expected to be victims of sexual assault and research found that women are foremost concerned about the prospect of sexual assault in any crime situation. These studies have led to the tentative conclusion that women are more fearful because of their greater vulnerability in hazardous environments. On the other hand, women are also more likely to oppose harsh punishment for criminals than men are (Huddy et al., 2008). This makes the issue of crime an interesting case for exploring how men's and women's media consumption may affect their perception of crime.

Immigration: The issue of immigration and integration was ranked the most important societal issue by the Swedish population years of 2015, 2016 and 2017, and still remains as one of the most important issues in the Swedish society according to the public. In the 2018 edition of the SOM survey, 53 percent of the respondents answered that it was a good proposal to receive fewer refugees (Martinsson & Andersson, 2019). Women are, however, overall more in favour of immigration than men are (Theorin & Strömbäck, 2019). In a Swedish context, results from a three-year, three-wave panel study, showed that there are limited effects of using traditional news media on attitudes toward and perceptions of immigration. However, more substantial effects were found among people using anti-immigration, right-wing alternative media or pro-immigration, left-wing alternative media (Theorin & Strömbäck, 2019). Immigration is furthermore one of the most covered topics among alternative media platforms in Sweden (Holt, 2017). When studying public perception toward immigration it is, thus, vastly relevant to account for media use, especially alternative media use. Put together, these findings yield immigration an appropriate case for examining the factors suggested to shape people's perceptions of societal-level phenomena.

In sum, alternative media is, thus, expected to cover the issues of immigration, crime and climate change substantially different from mainstream media. While immigration and crime are expected to be covered with a more critical perspective and negative tonality than in mainstream media, the issue of climate change is expected to be reported using counter-frames.

2.4 Hypotheses

The hypotheses are structured to mirror the research questions; gender differences in sociotropic beliefs and gender differences in polarization. This structure, which is further extended in the findings section, provides a favourable viewpoint into the relationship between gender and media-driven belief polarization.

Firstly, as prior studies have suggested that sociotropic beliefs perceptions commonly differ between men and women (Beutel & Marini, 1995; Nordin & Oscarsson, 2015) and comparable gender differences have been noted relating to the three issues of interest, this thesis consequently hypothesises:

H1: *There are divergencies between men's and women's perceptions on the issues of climate change, criminality and immigration.*

Secondly, public opinion scholars have emphasised that media usage and interpersonal communication are prominent factors in shaping people's perceptions of societal-level phenomena (e.g. Kumlin, 2004; Mutz, 1998; Shehata et al., 2020) and such factors are further believed to differ – both in terms of degree and impact – between men and women (e.g. Eagly, 1978; Knobloch-Westerwick & Hoplamazian, 2012). Moreover, interpersonal communication is suggested to condition media effects and significantly influence people's attitude (and arguably also sociotropic beliefs) (Schmitt-Beck, 2003; Song & Boomgaarden, 2017). It is therefore hypothesised that:

H2: *Gendered differences in sociotropic beliefs are explained by disparity in (a) media usage, and (b) interpersonal communication.*

Finally, the RSM's main theoretical contribution is, put easily, the marriage of selective exposure approaches with media effect studies, in understanding the dynamics of media use and influence over time (Slater, 2007; 2015). As effect studies suggest that media usage and IPC may influence people's perceptions of society on the one hand, and evidence from the selective exposure literature indicates that perceptions of society influence media usage on the other, the relationship appear to be reciprocal. Correspondingly, prior research has proposed gender effects in relation to all three components (e.g. Djerf-Pierre & Wängnerud, 2016; Eagly, 1978; Knobloch-Westerwick & Alter, 2007). The third hypothesis thus states:

H3: *There are (a) reinforcing spirals between media usage, issue perceptions and interpersonal communication, and (b) these processes are conditioned by gender.*

Against this backdrop, the present study will move on to examine the causal links between gender and reinforcing spirals of issue perception more closely by using three methodological approaches. First, a descriptive analysis of the characteristics and magnitude of gender differences in alternative media use and polarization levels to the three issues will be conducted. Based on that analysis, the thesis moves on to study if how gender effects sociotropic beliefs and whether interpersonal communication mediates this effect by employing mediational SEM analyses. This is followed by cross-lagged analyses, targeting to answer if the RSM can assist in explaining the predicted gender differences.

3 Research design and methods

To being with, this thesis will apply a quantitative research approach as it aims to statistically provide evidence on whether men's and women's perceptions on a range of societal issues differ, and if these differences are maintained and conceivably reinforced through selective exposure to alternative media. Since the idea is to test hypotheses which are generated from existing theory (the RSM and theories of sociotropic beliefs), this study will follow a deductive approach. Moreover, it will apply a positivist epistemological position, and an objectivist ontological perspective as these perspectives are closely related to the approaches mentioned above. Furthermore, a longitudinal data analysis was conducted. This provides a favourable viewpoint into the relationship between gender and belief polarization and makes it possible to both detect and draw firm conclusions relating to "spiral effects" (Slater, 2007; Slater, 2015) between news use and polarization levels.

3.1 Cultivation panel

To address the research questions and hypotheses, this study relies on a three-wave Swedish panel survey. The survey was conducted by LORE (Laboratory of Opinion Research) on behalf of a research group at the department for media and communication at the University of Gothenburg. The purpose of the survey was to study long-term cultivation of sociotropic beliefs (Martinsson et al., 2020). Notably, LORE's sampling procedure was based on probability sampling (using both telephone and regular mail during the initial recruitment phase), instead of self-selected recruitment. From LORE's pool of probability-recruited participants, a sample of 3,397 respondents (stratified on gender, age, education and political interest) was drawn. 2,291 respondents participated in wave 1 (67%), which was fielded March 22-April 16, 2018. 1,880 respondents participated in wave 2 (59%), fielded in December 10-January 8, 2018/2019, and 1,819 in wave 3 (63%), fielded in October 7-October 28, 2019. 1,508 respondents participated in all three waves (Martinsson et al., 2020).

Analytically, the panel structure allows for several powerful modelling strategies (Shehata et al., 2020). In order to analyse the causal and reciprocal effects between media usage and belief polarization in men and women, this study relies on structural equation modelling (SEM) as its panel analytic method. By using SEM, it is possible to account for a fundamental criterion for

valid causal inference, namely assess the direction of, or the potentially reciprocal, influences between media use and belief polarization. However, SEM is not the same as causal modelling, as causality foremost relates to research design, rather than data modelling (Sturgis, 2016).

In the first step, a descriptive analysis is executed, targeting RQ3a. By examining measures of mean and variance, the study answers (1) if societal perceptions among the public are becoming more dispersed and (2) if men and women are becoming more different in their perceptions of society. Secondly, a mediation analysis is conducted using a path model via SEM to answer RQ3b and H2a. In the path model gender is the key independent variable, predicting different media usage, interpersonal communication, and finally perception towards the three different issues. To answer research question 1, 2, 4 and 5, and hypotheses 1 and 3, the study estimates cross-lagged panel models (CLPM) using SEM in order to assess whether the effects run from media use to issue perception (media effects), from issue perception to news media use (selection effects), or whether there are mutual influences between media use and engagement (reciprocal effects). These autoregressive models provide estimates both of the stability of media use and issue perception between waves, as well as how lagged values of each effect change in the other over time (Acock, 2013; Finkel, 2008). In these analyses, gender is modelled as a moderating variable by applying group comparisons. If the correlation is indeed stronger among men than women, this speaks for gender as a conditional factor in terms of polarization tendencies through reinforcing spirals processes. By comparing these different models, it is possible to assess both the direction of influences between media consumption use and issue perception, as well as to provide a substantially stronger test of socialisation and gender effects by controlling for stable unit-level heterogeneity.

3.2 Key variables

The key concepts measured in this thesis – societal issue perceptions as well as two distinct forms of media usage – were operationalised using multiple survey items identical across the three waves. The same holds true for the operationalisation of interpersonal communication.

3.2.2 Issue perception

Respondents' perceptions of the nature and causes of crime, climate change and immigration and integration were measured using a battery of factual agree-disagree statements. The mean

and variance in the response rates are then used to assess polarization levels. Between four and five items are used on each issue. All responses are registered on a five-point scale ranging from 1 (Not true at all) to 5 (Completely true), along with a separate "Don't know" option. "Don't know"-responses are not incorporated in any of the analyses.

Before constructing the indexes, three principal component analyses (PCA) were conducted. The PCA is a factor analysis approach and is conducted to assert that the items used in the index are unidimensional. What the PCA does is examining how many "underlying" factors are required to represent data. When analysing the results, attention is paid to the eigenvalue, which is how much of the total variance over all the items is explained by the first factor. To avoid subjective or arbitrary criteria for factor or component analysis, several methods have been developed, allowing scholars to determine an appropriate range of solutions to investigate. This thesis followed Kaisers criterion, which states that all components with eigenvalues under 1.0 should be dropped. If only one factor has an eigenvalue greater than 1.0, it means that one underlying factor can explain correlations between the items of interest in an adequate way. In other words, the correlations between the items in the analysis are strong enough to argue that they all measure the same underlying dimension (in this case, climate change/crime/immigration perception) (Acock, 2013). After some modifications (demonstrated below) findings from the PCAs revealed a clear unidimensional structure within all three issues. Therefore, three indexes, tapping perceptions toward each issue (based on the items related to that issue) were created.

Lastly, Cronbach's alpha was used to measure the reliability of the measures. Cronbach's alpha is the most commonly reported measure of internal consistency and it ranges from 0 to 1. Usually, a coefficient of 0.7 or greater is considered satisfactory. As an example, a coefficient of 0.8 would mean that 80 percent of the scale is reliable or, alternatively, 20 percent of the variance is due to error (Mehmetoglu & Jakobsen, 2017).

Immigration beliefs: In total, four items are used, focusing on descriptive beliefs, following from the overall question: "Different claims are sometimes heard in public discourse on integration and immigration. To what extent do you agree with the following statements?". These are the four items covering descriptive beliefs: (1) Problems related to integration of

immigrants into Swedish society have increased during the past decade, (2) Integration of immigrants into the Swedish society have improved since the 1960s, (3) Integration of immigrants is more successful in Sweden than our neighbouring countries, as well as, (4) The issue of integration of immigrants is often exaggerated in the public discourse.

To fit the PCA, the first statement was recoded so that the scale ranged from 1 (Completely true) to 5 (Not true at all). As the PCA analyses the correlation matrix where each item is standardised to have a variance of 1.0, the eigenvalues combined will add up to 4 (since the index consists of 4 items). The first factor in the PCA is 2.55. This means that the first factor explains 2.55 out of 4, or it is possible to say that it explains 64% of the variance in the set of items. The scale that originally ranged from 1 to 20, was recoded so that it ranged from 1 to 6. (Wave 1: PCA factor 1=2.55, Cronbach's alpha=0.79, M=4.86, SD=1.21).

Crime rates beliefs: Similar to the procedure presented above, four items are used focusing on descriptive beliefs, following from the overall question: "Different claims are sometimes heard in public discourse on crime of violence and criminality. To what extent do you agree with the following statements?" (1) During the past years, crime(s) of violence have increased, (2) Crimes of violence have decreased in Sweden since the 1950s, (3) More violent crimes per inhabitant are committed in Sweden than in our neighbouring countries, as well as, (4) The issue of violent crimes is often exaggerated in the public discourse. The first and the third statement were recoded so that the scales ranged from 1 (Completely true) to 5 (Not true at all) in order to fit the PCA. The scale that originally ranged from 1 to 20, was recoded so that it ranged from 1 to 6. (Wave 1: PCA factor 1=2.76, Cronbach's alpha=0.85, M= 4.04, SD=1.59).

Climate change beliefs: Respondents' perceptions of the nature and causes of climate change are measured using one battery of factual agree-disagree statements. In total, five items are used focusing on descriptive beliefs, following from the overall question: "Different claims are sometimes heard in public discourse on climate change. To what extent do you agree with the following statements?". The five statements were: (1) Global average temperatures have increased in the past 100 years, (2) Scientists disagree on whether climate change is taking place, (3) Droughts, heavy storms and floods become worse due to climate change, (4) Sweden won't be affected by climate change the next decades, as well as (5) The issue of climate change

is often exaggerated in the public discourse. The second, fourth and fifth statement were recoded so that the scales ranged from 1 (Completely true) to 5 (Not true at all) in order to fit the PCA. The scale that originally ranged from 1 to 25, was recoded so that it ranged from 1 to 6. (Wave 1: PCA factor 1=2.57, Cronbach's alpha=0.72, M=5.08, SD=1.02).

3.2.3 Defining gender

When defining gender, it is not necessarily meaningful to assess gender as a continuous variable, even though levels of femininity and masculinity doubtlessly exist. Results from advertising processing research are generally alike, whether gender is operationalized as a continuous or binary construct (Wolin & Korgaonkar, 2003). In this study, thus, gender is operationalised as a binary construct (male or female) and is termed "gender" instead of "sex" since gender is considered both a sociological and biological process (Babin & Boles, 1998).

The panel study asked respondents to identify their gender. 1,172 respondents identified as female (51%), and 1,119 respondents identified as male (49%). Gender was dummy-coded for the path analyses such that "male" was coded as 1 and "female" was coded as 0. In the cross-lagged model, multiple group comparison is utilized to estimate gender's effect as a moderating variable. This way, gender takes the role of a categorical moderator, and is thus assumed to moderate the relationship between selective exposure and media effects.

3.2.4 Media usage

To examine how people's media usage may affect their issue perception, this thesis is focusing on the differences between alternative media consumption and mainstream media consumption.

Alternative media: Participants' usage of alternative news media is captured based on a set of items covering their general inclination to seek online news providing alternative perspectives actively. Four items were used, asking, "How often do you use online news websites or social media to follow..." (1) News about societal issues not reported by the traditional media, (2) News that provide an alternative view on societal issues than traditional media (3) News that target societal issues the way I see them, as well as (4) News that provide new perspectives on important societal issues. These items were combined with three additional items on issue-specific alternative media usage: "How often do you use online news websites or social media

to follow news that provides an alternative view than the traditional media on the following topics?". The items that followed were (5) News about crime, (6) News about the climate and environment, as well as (7) News about integration and immigration. Response categories on these seven items ranged from 1 (Daily) to 6 (Never), but was reversed so that the scales range from 1 (Never) to 6 (Daily). A PCA showed that only one factor had an eigenvalue greater than 1.0. Hence, the items were added into an overall usage of alternative media index. (Wave 1: PCA factor 1=4.59, Cronbach's alpha=0.89, M = 2.82, SD = 1.39).

Mainstream media: Participants' usage of mainstream news media is likewise captured based on a set of items covering their general inclination to actively seek news (online or traditional channels) for a list of specific outlets, namely: Sveriges Radio (SR), Sveriges Television (SVT), TV4 Nyheterna, Dagens Nyheter, Svenska Dagbladet, Aftonbladet, Expressen, Göteborgs-Posten and "Other local newspaper", as recommended (Andersen, et al., 2016). Similar to the items capturing alternative media consumption, response categories ranged from 1 ("Daily") to 6 ("Never") (reversed). Subsequently, items were added into an overall usage of mainstream media index (Wave 1: Cronbach's alpha=0.58, M=2.92, SD=1.00).

3.2.5 Interpersonal Communication

Following the general theories of sociotropic belief formation and reinforcing spirals as outlined in the background section, accounting for alternative sources of information is essential. Issue-specific interpersonal communication is included in the cross-lagged path model to rule-out men's and women's everyday talk about these issues with friends and family as a driver of belief formation. In the path analysis, in which the question if men's and women's media usage can explain their perceptions of society is examined, interpersonal communication is included as a mediating variable.

People's inclination of discussing societal issues with friends and family was captured based on a set of items covering issue-specific communication practices, namely: "How often do you discuss criminality and crime rates with family or friends?" (Wave 1: M = 3.75, SD = 1.24), "How often do you discuss environmental- and climate issues with family or friends?" (Wave 1: M = 3.85, SD = 1.13), and "How often do you discuss integration and immigration with

family or friends?" (Wave 1: M = 3.95, SD = 1.21). Response categories on these items ranged from 1 (Daily) to 6 (Never) but were reversed.

3.2.6 Control variables

In addition, a set of control variables are employed to control for possible composition effects or spurious or intervening effects. Following control variables are chosen because they have been shown to correlate with an individual's media diet and/or polarization level (Dvir Gvirsman, 2014; Dahlgren et al., 2019).

Interest in politics is measured by the question: "How interested are you generally in politics?" The response alternatives ranged from 1 = Not at all interested, to 5 = Very interested. (Wave 1: M = 2.90, SD = 0.69).

Partisan or ideological differences are captured by including political ideology (left-right placement) as a control variable. The response alternatives ranged from 1 = Very left-leaning, to 10 = Very right-leaning (Wave 1: M = 4.97, SD = 2.23).

These control variables are also chosen since they tap into the social identity spectra, and thus can control for gender differences particularly. Furthermore, *age and educational level* are accounted for as socio-demographic control variables. Age was coded into six categories: 1 = Below 30 y/o, 2 = 30-39 y/o, 3 = 40-49 y/o, 4 = 50-59 y/o, 5 = 60-69 y/o and 6 = 70 y/o or older. There were nine response alternatives for education, ranging from 1 = Not finished elementary school, to 9 = Finished doctoral studies.

While the argumentation presented in the theory section may correspond to treating ideology and political interest as mediating variables in the analysis, which is also the most common strategy among studies examining gender effects, this study will instead treat these subfactors as control variables. This decision is based on two prospects: (1) the principal aim of this study is to examine gender differences related to media usage and media-driven belief polarization – not necessarily what these differences constitute, and (2) by controlling for ideology and political interest, it is possible to observe if a relationship between gender and issue perception

remains after the analysis, which in such case would mean that potential gender differences could not be explained by ideology or political interest.

In the case of the cross-lagged panel models, the same variables are controlled for, although some scholars argue the need to control for many stable factors disappears when using a cross-lagged panel. Dahlgren et al. (2019), for instance, stress that lagged dependent variables serve as "catch-all" proxies for unmeasured omitted variables at each wave of the panel. Compared to regression models on cross-sectional data, CLPM thus provides a more robust set of controls (p 166). It can, however, be of value to add some more unstable control variables since these variables merely work as 'catch-all controls' up until the prior panel wave (Dahlgren et al., 2019). To what degree people participate in interpersonal communication with friends and family about a societal problem such as immigration, crime or climate change could, for instance, be a factor that may change between waves. Consequently, interest in politics and political ideology are – despite their stable characteristics – controlled for in the models in order to exclusively capture if and how effects between media usage, IPC and issue perception are conditioned by gender. This thesis now moves on to describe its key statistical techniques.

3.3 Descriptive analysis – polarization

Issue perception is a crucial focal variable in the model, measured in order to assess polarization patterns. There are several ways to both define and operationalize polarization (DiMaggio et al., 1996). Studies of intergroup agreement/disagreement often inspect the difference in means as measurement, which this thesis will adhere to as well, in order to see if differences between men and women have become greater or smaller over time. However, this measure suppresses information relevant to understanding intergroup differences. For instance, focusing on mean reveals nothing about the shape of the distribution. Public perceptions on an issue can also be characterized as polarized to the extent that perceptions are varied, and moderately balanced between ends of the perception spectrum. Polarization is thus closely linked to dispersion too. The variance is the natural measure of opinion spread, with polarization entailing increased variance over time. It signifies the degree to which any two randomly selected respondents are expected to differ in their opinions and is affected by the proportion of extreme responses. Accordingly, variance increases when perceptions become more polarized (DiMaggio, et al.,

1996). Examining polarization patterns within issue perceptions, it is therefore mean and variance that are studied.

DiMaggio et al. (1996) furthermore argue polarization entails the degree to which perceptions cluster around two opposing positions with few moderate perceptions in between (increased bimodality, measured by kurtosis) and the existence of systematic differences between groups (increased belief constraint, also referred to as "identity-based polarization", measured by alpha). While it is beyond the scope of this thesis to take all these measurements into consideration, by studying the distribution of issue perceptions in a graph or histogram, it is largely feasible to confirm whether perceptions are clustering around opposing positions or not. Moreover, patterns of identity-based polarization may be traced indirectly through the cross-lagged models by comparing how the effect of ideology and political interest differ among men and women on sociotropic belief formation. The overriding downside with, not only these measures, but the entire polarization concept, is the lack of threshold values. While interpretation ought to be guided by theory, it will to a certain extent always be arbitrary.

3.4 SEM

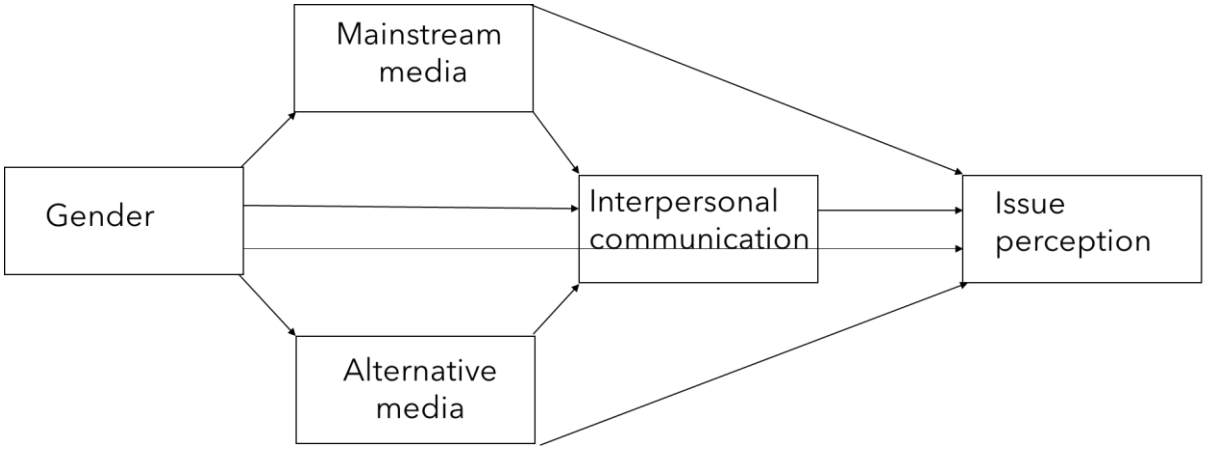
To be able to answer if selection effects and media effects differ between men and women, and ultimately if one of the two is more likely to polarize, structural equation modelling (SEM) was used. The benefit of SEM is that "[I]t allows one to estimate the relationship between a number of independent variables and more than one dependent variable at the same time" (Mehmetoglu & Jakobsen, 2017, p. 294), in contrast to traditional techniques such as regression analysis. In SEM value is estimated through path coefficients, which indicates the direct effect of a variable assumed to be a cause on another variable assumed to be an effect. Path coefficients are standardised because they are estimated from correlations (Acock, 2013).

3.4.1 Path analysis

Path analysis is a statistical technique and a type of the general linear model that examines the impact of a set of predictor variables on multiple dependent variables (Allen, 2017). While OLS models yields the direct effect of predictors, path analysis may be used to estimate the indirect effect of a cause on an effect by multiplying the direct effects along the paths from the beginning

to the end of a causal chain of variables (Sturgis, 2016). Indirect effects of antecedent variables (i.e., variables that influence other variables, in this case, gender) on a consequent variable (i.e., a variable that is influenced by other variables, in this case, issue perception) can be summed to determine the total effects on that criterion variable. Variables that function as both antecedents and consequents, such as media consumption and interpersonal communication, are mediating variables. Ultimately, a proposed structure that describes the causal flow from antecedent to consequent variables is typically constructed. Figure 2, below, represents the structure proposed to answer RQ3 and H2.

Figure 2. An outline for the proposed path model of gender's effect on belief polarization



Note. The proposed path model controls for a range of sociodemographic variables, such as age and education.

In order to disentangle the direct, indirect, and total effects of gender on issue perception (and in an extension media-driven belief polarization) among citizens, SEM is used to estimate a path analysis. Based on the theoretical reasoning aloft, the predictor of people's polarized perceptions is gender. The primary purpose of this model is to assess whether the effects of gender documented previously are mediated by media usage and interpersonal communication. That is, does gender influence issue perception by affecting an individual's news media consumption and tendency of discussing such issues, or are gender effects mediated by some other mechanism? Therefore, two variables of different kinds of news media consumption are included as mediating variables in the causal model, expected to be influenced by gender, as

well as to exert a direct impact on issue perception. Similarly, interpersonal communication is believed to function as a mediating factor in such a way that perceptions on societal issues develop in relation to communicative practices within people's social networks. Considering findings of prior research, men should be involved in more interpersonal communication, while women, on the other hand, may be more susceptible to influence through such communication practices. In addition, media consumption is expected to a have a positive effect on interpersonal communication, in such way that people who consume alternative and/or mainstream media will be more likely to discuss societal issues with friends and family.

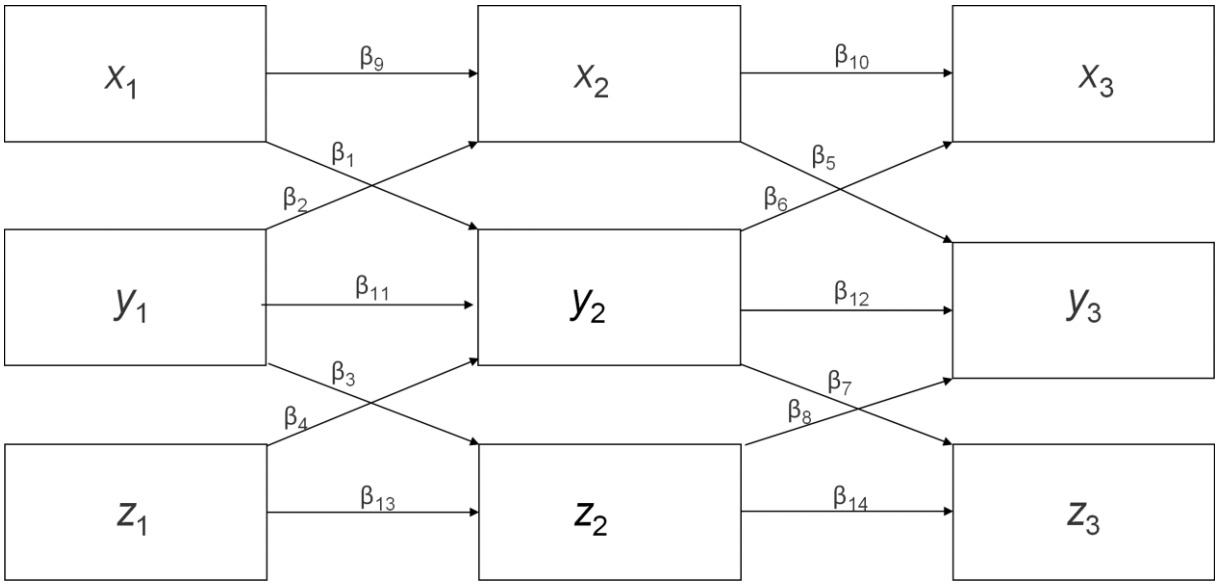
3.4.2 Cross-lagged panel analysis and group comparisons

This thesis now moves on to examine if the relationship between media usage and sociotropic beliefs are characterized by mutually reinforcing spirals, and whether these reinforcement processes are moderated by gender (RQ4, H3), and to explore if these reinforcement processes are universal or issue specific (RQ5). To do this, cross-lagged structural equation models will be conducted.

Cross-lagged panel models, CLPM, (also called cross-lagged panel analysis or cross-lagged regression models) estimate the directional influence variables have on each other over time and is thus an analytical strategy used to describe reciprocal relationships. Cross-lagged path models compare cross-lagged relationships. More than allowing for the estimation of cross-lagged effects, they also control for correlations within time points and autoregressive effects, or stability, across time. Autoregressive effects, then, represent the amount of stability in constructs over time. While smaller autoregressive coefficients (closer to zero) indicate more variance in the construct (denoting less stability or influence from the previous time point), larger autoregressive coefficients indicate little variance over time (denoting more stability or influence from the previous time point). Because the stability of the constructs is controlled for, it is generally believed that the cross-lagged regression parameters attained through the model are the most appropriate measures for examining causality in longitudinal correlational data. Cross-lagged coefficients are usually standardised in order to compare their relative strength to determine which variables have the most substantial influence (Hamaker, 2015).

The cross-lagged panel model used in this thesis consists of three X variables (x1, x2, x3) representing media usage, three Y variables (y1, y2, y3) representing issue perception, and three Z variables (z1, z2, z3) representing interpersonal communication. The model also consists of parameters, including cross-lagged paths β1, β2, β3, β4, β5, β6, β7, β8 and autoregressive paths β9, β10, β11, β12, β13, β14 (Allen, 2017).

Figure 3. Three-wave Cross-lagged Panel Model



Note. In this model, β1 represents the cross-lagged effects from X1 on Y2 and β2 from Y1 on X2.

When fitting a path model, as demonstrated aloft, it is common to include a categorical variable as a predictor (Acock, 2013). In the case of this study, the categorical variable gender is the predictor of the endogenous variables (alternative and mainstream media consumption). This adds the gender effect, if any, to the estimated score on the outcome variable (issue perception). However, the CLPMs will be assessed using group comparisons, which differs from the approach used in the path analysis (Acock, 2013). For instance, it is feasible to expect, as mentioned in the theory chapter, that the effects of other exogenous variables vary by gender. For instance, the effect of interpersonal communication on issue perception may be different for women than it is for men. A path model in which gender functions as an exogenous variable is not able to handle this, and it is therefore necessary to allow for the interaction of gender with interpersonal communication. This means that the effect of interpersonal communication on

issue perception is moderated by gender. Similarly, there is a believed interaction between gender and media usage and issue perception. The effect of media usage on issue perception (or vice versa, following the RSM), is ultimately contingent on the level of the third variable, female.

3.4.2.1 Model fit

Next follows an assessment of the goodness-of-fit of the models (Kaplan, 2008), i.e. interpretation of the model. There are several approaches to assessing fit, for instance: chi-square test ($\chi 2$), root mean square error of approximation (RMSEA) and Comparative Fit Index (CFI). Chi-square test is a function of the sample size and the difference between the observed covariance matrix and the model covariance matrix. For this test to show a good fit, the p-value should be above 0.05. However, χ 2 tests have been found sensitive to large sample sizes, making other tests more appropriate (Mehmetoglu & Jakobsen, 2017). The second test, CFI, compares the hypothesised model with the baseline fit that assumes there are no relationships among the variables or, in other words, the poorest fit instead of the perfect fit. It largely depends on the average size of the correlations in the data. A CFI value of .95 or higher is desirable (Acock, 2013). The root mean squared error of approximation (RMSEA), is based on the ratio of chi-square to degrees of freedom and considers sample size and model complexity when assessing the fit as it favours simple models with few parameters (Allen, 2017). RMSEA ranges from zero to one, where a value of .05 reflects excellent fit, .06 very good fit, .07 good fit, and .08 acceptable fit. Is the model proves a RMSEA value of .09 and beyond, it ought to be considered a poorly fitting model.

In Table 1, 2 and 3 the test results of the original, unadjusted path and cross-lagged models are displayed. None of the results is considered acceptable. The command "estat mindices" helps to improve the model fit by providing an overview of which paths the software recommend adding to improve the fit, so-called modification indices. When assessing modification indices, one should look for high numbers and paths that are theoretically justifiable (Mehmetoglu & Jakobsen, 2017). In the path analyses, a path between gender and issue perception is identified. More than improving the fit of the model, it also provides the opportunity to examine whether gender indeed has a direct effect on issue perception. However, since the model is saturated (that is, the model reproduces data perfectly because all variables are allowed to correlate with

each other), the model fit cannot be calculated. In all the cross-lagged models, two reasonable paths are identified, namely a path between selective media exposure in wave 1 to selective media exposure in wave 3 and a path between selective media exposure to interpersonal communication. In Table 3 and 4, the models have been adjusted by adding these paths, and the model fit has thus substantially improved. While the $\chi 2$-test is still significant, which is not ideal, this test is as aforementioned vastly sensitive to large sample sizes. Hence, most attention should be paid to the other two tests. As shown in the tables, both RMSEA and CFI display values that are, if not good, acceptable.

Table 1. Goodness of fit, path model

	Model 1 (original)			**Model 2(adjusted)**		
	Climate	Crime	Immigration	Climate	Crime	Immigration
χ 2 (df)	56.36	56.66	77.37	.	.	.
P-value	0.000	0.000	0.000	0.000	0.000	0.000
RMSEA	0.109	0.109	0.128	0.000	0.000	0.000
CFI	0.844	0.928	0.862	1.000	1.000	1.000

Note. The unadjusted model only includes the three key variables, namely: the media variable, issue perception and interpersonal communication, where gender has no direct effect on issue perception and IPC is modelled as an endogenous mediating variable. The second model is estimated with a direct path between gender and issue perception. However, model fit cannot be calculated since the model is saturated. The model controls for political interest, ideology, age and education.

Table 2. Goodness of fit, cross-lagged model: traditional media

	Model 1 (original)			**Model 2(adjusted)**		
	Climate	Crime	Immigration	Climate	Crime	Immigration
χ 2 (df)	577.76	635.29	686.58	53.46	95.75	71.25
P-value	0.000	0.000	0.000	0.000	0.000	0.000
RMSEA	0.112	0.118	0.123	0.028	0.046	0.037
CFI	0.924	0.928	0.907	0.997	0.992	0.994

Note. The unadjusted model only includes the three key variables, namely: the media variable, issue perception and interpersonal communication, modelled according to the original RSM. The second model is estimated with a path between selective media exposure in wave 1 to selective media exposure in wave 3 and a path between selective media exposure to interpersonal communication to improve model fit. The model controls for political interest, ideology, age and education.

Table 3. Goodness of fit, cross-lagged model: alternative media

	Model 1 (original)			**Model 2(adjusted)**		
	Climate	Crime	Immigration	Climate	Crime	Immigration
χ 2 (df)	568.34	695.31	692.41	89.24	133.73	88.22
P-value	0.000	0.000	0.000	0.000	0.000	0.000
RMSEA	0.180	0.148	0.180	0.044	0.057	0.043
CFI	0.897	0.940	0.882	0.991	0.986	0.991

Note. The unadjusted model only includes the three key variables, namely: the media variable, issue perception and interpersonal communication, modelled according to the original RSM. The second model is estimated with a path between selective media exposure in wave 1 to selective media exposure in wave 3, a path between issue perception in wave 1 to issue perception in wave 3, a path between IPC in wave 1 to IPC in wave 3 and a path between selective media exposure to interpersonal communication to improve model fit. The model controls for political interest, ideology, age and education.

3.5 Validity

With regards to how well the chosen variables succeed in capturing the concepts of interest, several concerns are noteworthy. Firstly, the conceptualization of alternative media poses an issue in terms of validity of this thesis. Although media reports find that ideologically right-leaning alternative media are vastly overrepresented in the Swedish case, it is still not possible to distinguish how respondents in the study interpreted “alternative media”, nor estimate how many of the respondents with an alternative media orientation actually consume left or right-leaning alternative media. Hence, the index that measures selective exposure to alternative media is unable to capture if right-leaning or left-leaning alternative media have a different effect on polarization levels in society. Since vastly different approaches toward the societal issues of interest are to be expected from these platforms, it is further possible that effects are cancelled out in such way that people who seek out right-leaning alternative media will be reinforced in beliefs about an escalating issue with immigration rates. In contrast, people who consume left-leaning alternative media may attain reinforced beliefs about a widely closed society where immigrants are declined asylum. It may thus seem like the selective exposure index targeting alternative media fails to predict if people indeed may be trapped in right versus left-leaning alternative media bubbles. However, this issue is attended in the findings section.

Moreover, there are some issues with the index targeting to measure polarization levels. To begin with, each index only consists of four to five items. This set of items undoubtedly provides an indication of a person’s perception of reality but may not be able to assess how extreme perceptions a person truly possesses, as the items do not capture the full spectra of complexity surrounding each of the issues. Secondly, the items were recoded in such way that the option "Don't know" was reported as missing. This may pose an issue towards validity as important nuances of respondents self-assessed level of knowledge gets lost. Looking at the response rate on immigration perception, for instance, N is remarkably lower for women than for men (N, women: 681; N, men: 804). Most likely, this means that women are more prone to choose the "Don't know"-option. However, it remains unknown if this is due to lower “issue knowledge”, or if it could be explained through theories of risk aversion, which principally implies that women are less likely to guess on questions for which they are uncertain (Lizotte & Sidman, 2009). It is further unknown if this tendency may have something to do with their media consumption. If this is indeed the case, it is something which ought to be examined

closer. Unfortunately, it is beyond the scope of this thesis to answer such questions, though they should still be considered.

Another variable that poses a concern towards validity is that of interpersonal communication. As much of the literature pool on interpersonal communication target effects within homogeneous versus heterogenous social networks, and how dissonant messages are responded to within such networks, the posed hypothesis are built mainly on the assumption that respondents foremost belong to homogenous social networks in which media messages are reinforced or strengthened, rather than altered. Previous research also indicates that close-tie interpersonal communication often is homogenous (Katz & Lazarfeld, 1955; Schmitt-Beck, 2003). However, it is not possible to say that this is indeed the case, and similar to the issue of alternative media, it could be that discussion within homogenous and heterogenous social networks cancelled each other out. Besides, as the chosen research design only assess group changes, it is impossible to examine individual effects – both related to media effects and selective exposure, but also interpersonal communication processes.

Finally, some validity-issues arise on account of the cross-lagged panel analyses. Cross-lagged panel models assume that the influence of one variable on another is a function of lag, or time between waves of measurement. To have meaningful interpretations, the amount of lag must be contextually appropriate, something which may pose difficulties in terms of data gathering as the RSM lacks theoretical guidelines in what constitutes an appropriate lag. While the effects will dissipate before the next time of measurement if the lag is too long, measurement will occur before the effects can be observed if the lag is too short (Allen, 2017). Whether the amount of lag in this study was contextually appropriate is impossible to establish without comparison. However, with regards to the findings presented in the following section, it would appear as if the time between the waves of measurement was adequate.

4 Results

The analysis begins with a descriptive statistic section in which the overall perceptions towards the three issues in the study are examined coupled with respondents' media habits. This is followed by an analysis of the divergencies between men's and women's perceptions to answer RQ1. To answer RQ2 and RQ3 and test H2, a series of path models using structural equation modelling was estimated (Acock, 2013). To make full use of the data and investigate reciprocal influences between sociotropic beliefs and media use (RQ4 and RQ5, and H3), cross-lagged structural equation models were conducted.

4.1 Part 1: Identifying the gap

Before analysing the SEM results, what can be concluded regarding media use is that men, as predicted, in general seek out more news media than do women. When examining both the mainstream media index and the alternative media index, male respondents turn to both mainstream and alternative media platforms for news more often than do women and thus have a slightly higher mean (see Appendix 4). However, when examining all media items individually, results show that women consume news from SVT to a slightly higher degree than men. In all items covering alternative media consumption, men display higher levels of consumption. However, while women most often use alternative online news websites or social media to receive an alternative view on the topic of climate change, men most often turn to alternative media for news about criminality (men: M = 3.05, SD = 1.45, women: M = 2.59, SD = 1.29). During the course of the study, the level of media consumption was overall stable. The descriptive data, nevertheless, suggests small a decrease in alternative media consumption among women and a small increase among men.

Appendix 4 displays the degree of belief divergence to the three societal issues of interest throughout the panel study. The level of perception conviction among the population varies, yet not massively, between the specific issues. Out of the three issues, climate change is the issue that causes the least belief divergence. While a striking majority of the participants demonstrated very critical perceptions of climate change development in wave 1 (M = 5.08), this unity grew even stronger in the second wave (M = 5.15). Correspondingly, variance did not demonstrate values indicating any belief separation during the period ($1.03 < v < 1.28$). The

issue of crime development displayed an overall lower unity among the respondents. Throughout the study, however, the mean rose and the variance dropped, indicating that the issue is becoming less polarized. Similarly, the perceptions of immigration in Swedish society are (marginally) more diverse (M = 4.86, V = 1.47) than the issue of climate change. Albeit small changes in values, it is still interesting to note that during the three waves, critical perceptions toward the issue of immigration increases, while belief differences decline.

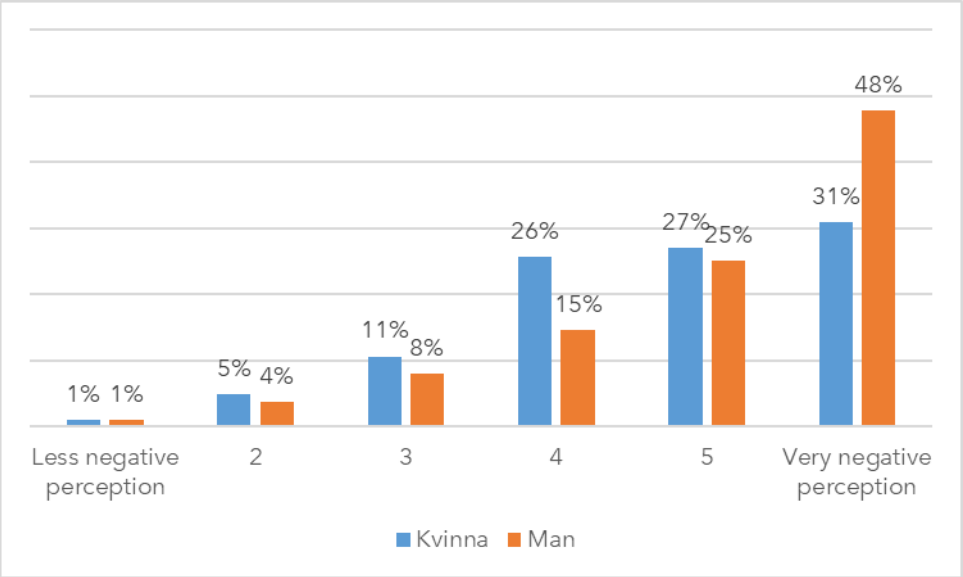
4.1.1 Gender differences

This thesis will now move on to explore change over time in variance and mean on the same scales and items for men and women. In order to conserve space, results are presented primarily when they differ the sample as a whole.

To test the hypotheses concerning whether men and women have a different population mean for the perception variables, Mann-Whitney U Tests were conducted. These tests are used to describe the null hypothesis – which is the opposite of what this thesis is expecting. Results from these tests showed a significant difference in perception to all issues between men and women (p = .000-.007), which means that the null hypothesis can be rejected.

With regards to the issue of immigration, male participants depict a more negative perception of the current situation than women. 48 percent of the men indicated negative perceptions related to immigration, while only 31 percent of the women agreed (men: M = 5.03, women: M = 4.65). In general, though, signs of polarization – both within and between groups – are absent in the data. Instead, the public attains a more congenial perception of the issue throughout the study. Women indicate a slightly more concerned perception, while men become somewhat less. Figure 7, below, displays the difference in perceptions of crime between male and female respondents in wave 1.

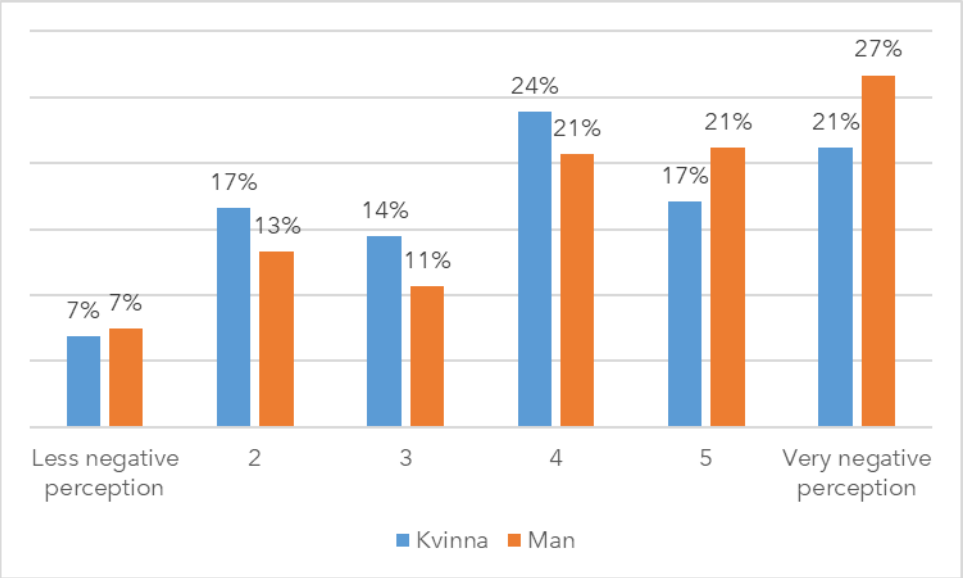
Figure 4. Gender Differences in Immigration Perceptions: Index Descriptive Statements, Wave 1



Notes: The questions were, "Different claims are sometimes heard in public discourse on integration and immigration. To what extent do you agree with the following statements? (1) Problems related to integration of immigrants into Swedish society have increased during the past decade, (2) Integration of immigrants into the Swedish society have improved since the 1960s, (3) Integration of immigrants is more successful in Sweden than our neighbouring countries and (4) The issue of integration of immigrants is often exaggerated in the public discourse." M = 4.86, SD = 1.21, Variance = 1.47, N = 1,485.

Among male respondents the most common answer to the descriptive questions covering the issue of crime was "strongly agree", indicating a critical assessment of the issue of crime in Swedish society (27 percent, female 21 percent). While a reasonably high variance value would suggest that the issue may be subject of polarization, this does not seem to be the case. One of the biggest concerns related to polarization, as stated above, is that people with different perceptions on an issue may cluster into separate camps with locations between the two positions sparsely occupied, since the extent to which belief variation leads to conflict is likely to depend on the extent to which occupants of polar stances are isolated from one another. If there are people with "middle positions", these actors may broker between extremes, which Figure 8 clearly shows there is.

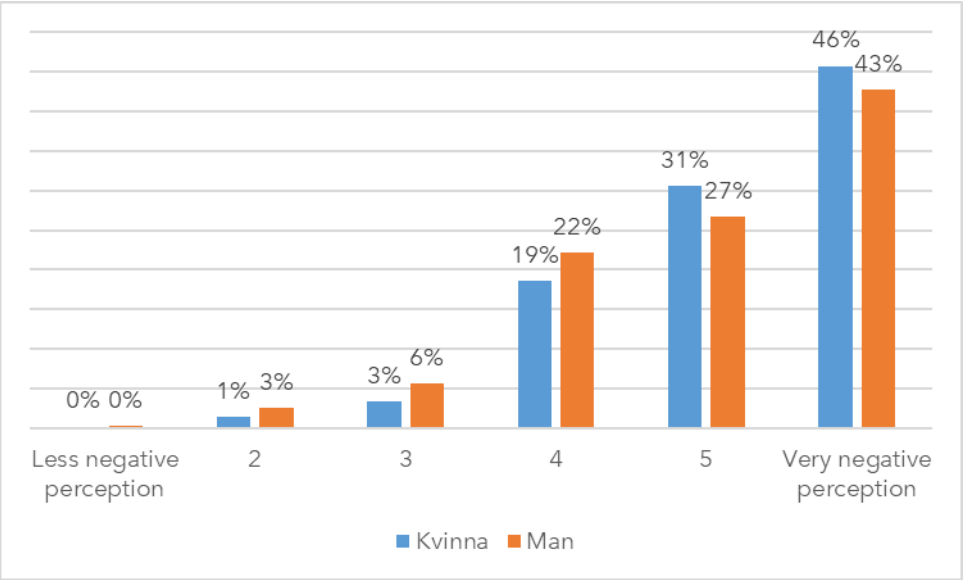
Figure 5. Gender Differences in Crime Perceptions: Index Descriptive Statements, Wave 1



Note: The questions were, "Different claims are sometimes heard in public discourse on crime of violence and criminality. To what extent do you agree with the following statements?" (1) During the past years, crime(s) of violence have increased, (2) Crimes of violence have decreased in Sweden since the 1950s, (3) More violent crimes per inhabitant are committed in Sweden than in our neighbouring countries and (4) The issue of violent crimes is often exaggerated in the public discourse." M = 4.04, SD = 1.59, Variance = 2.52, N = 1,407.

The issue that initially caused the least difference in perception between male and female participants was that of climate change. Only five people (2 women and 3 men) displayed hesitation towards the fact that climate change is a critical issue in wave 1 (men: M = 5.01, women: M = 5.15). However, these figures would alter somewhat during the study. While both men and women indicated very negative perceptions related to climate change in the second wave, these perceptions of concerned declined in the final wave, leading to increased variance. Ultimately, even though perceptions of climate change at large is not an issue where men and women diverge (neither within nor between groups), it is still the societal issue which at present displays figures implying a growing gap in perception. The difference in perceptions toward climate change between men and women in wave 1 is displayed in Figure 9.

Figure 6. Gender Differences in Climate Change Perceptions: Index Descriptive Statements, Wave 1



Notes: The questions were, "Different claims are sometimes heard in public discourse on climate change. To what extent do you agree with the following statements? (1) Global average temperatures have increased in the past 100 years, (2) Scientists disagree on whether climate change is taking place, (3) Droughts, heavy storms and floods become worse due to climate change, (4) Sweden won't be affected by climate change the next decades and (5) The issue of climate change is often exaggerated in the public discourse." M = 5.09, SD = 1.02, Variance = 1.04, N = 1,948.

Taken together, these descriptive analyses suggest that sociotropic beliefs differ between men and women, lending support for H1. While men are more inclined to display critical assessments of crime and immigration developments, women are more prone to exhibit negative perceptions toward the issue of climate change. Over the course of the panel-study, however, perceptions among men and women converged on two out of three issues.

4.2 Part 2: Path Analyses

As the descriptive analyses found support for a predicted gender gap in sociotropic beliefs, this study now moves on to answer RQ3, namely to what extent these differences can be explained by media usage and interpersonal communication. Consulting theory, media consumption is further believed to have a positive effect on interpersonal communication – which in turn is hypothesised to affect perception formation and maintenance. Thus, IPC concerned with the

issues of interest is modelled as a mediating variable in the path analyses. Ideology and political interest, which in most gender effect studies also are treated as mediating variables, will on the other hand be modelled as control variables. By controlling for these subfactors rather than examining their mediation effects, as aforementioned, it is possible to see if a relationship between gender and issue perception remains after the analysis – which in such case would mean that potential gender differences could not be explained by ideology or political interest.

First, an individual path model is constructed for each societal issue. Gender is dummy-coded so that 1 = male and 0 = female, meaning that significant coefficients displaying the direct effect of gender on media usage and interpersonal communication, is the reversed value for women. Due to length restrictions, only models testing for the effect of male will be displayed.

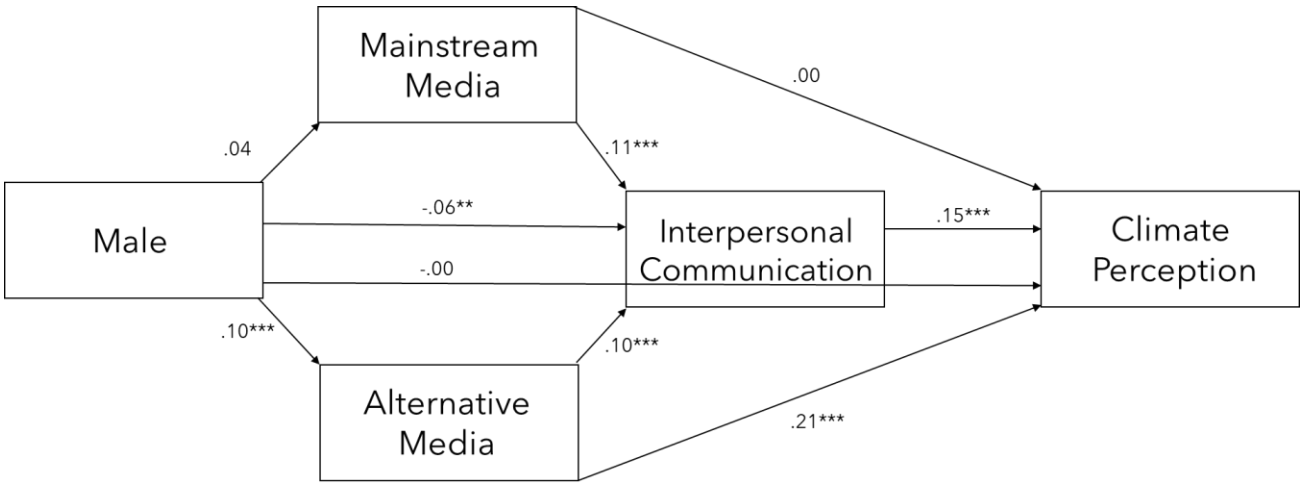
Before examining each societal issue separately, the first section of the path analysis confirms a statistically significant difference between women and men on news use. The standardised path coefficient of traditional news media for men is $\beta = .07$ ($z = 1.80$, $p < 0.001$). News on alternative media has a standardised path coefficient of $\beta = .17$ ($z = 4.69$, $p < 0.001$), controlling for political interest, ideology, education and age, as shown in Figure 6. Gender, thus, has a significant effect on news media usage. These results partly answer RQ2 (How do personal news media usage differ between men and women?).

4.2.1 Climate change

Turning to the effects of each variable on the endogenous outcome variable, issue perception, alternative news media use is to begin with found to have a negative, significant effect on climate change belief, $\beta = -.21$ ($z = -9.40$, $p < 0.001$). Owing to the extensive homogeny on the issue, this makes alternative media the strongest predictor of possessing less concerned perceptions about climate change, controlling for political interest, ideology, age, education and interpersonal communication. The total effect for male participants, $\beta = -.0304$ ($z = -1.39$, $p > 0.05$), is the effect found if there was no mediator in the model. However, the standardised path coefficient, the part of the effect that is not mediated by media consumption or interpersonal communication, of male is $\beta = -.0037$ ($z = -0.17$, $p > 0.05$). This means that: (1) gender has no statistically significant direct effect on climate change perception and (2) it is smaller than the total effect, which, if the results were significant, would indicate positive mediating effects. In

addition, there is also a significant negative indirect effect – the part of the effect that is mediated through mainstream news media use, alternative media use and interpersonal communication (with a value of β = -.03, z = -4.70, p < 0.001). In other words, this indirect effect is the product of the direct effects of gender on media usage, times the direct effects of media usage and interpersonal communication on climate change perception. By dividing the indirect effect with the total effect, the proportion of the effect which is mediated is obtained. In this case, almost 89% of the effect would have been mediated if all effects were significant. Continuing, the path model examining climate change explains 16% respectively 11% variance in mainstream and alternative media usage, 7% variance in interpersonal communication and 17% variance in issue perception.

Figure 7. Standardised estimates for men and climate change perceptions



Note. N = 2,288; χ 2 = .; p = .000; CFI = 1.000; RMSEA = 0.000. The model is estimated with correlated residuals and control variables to improve model fit. The model controls for political interest, ideology, age and education. *p < .05. **p < .01. ***p < .001.

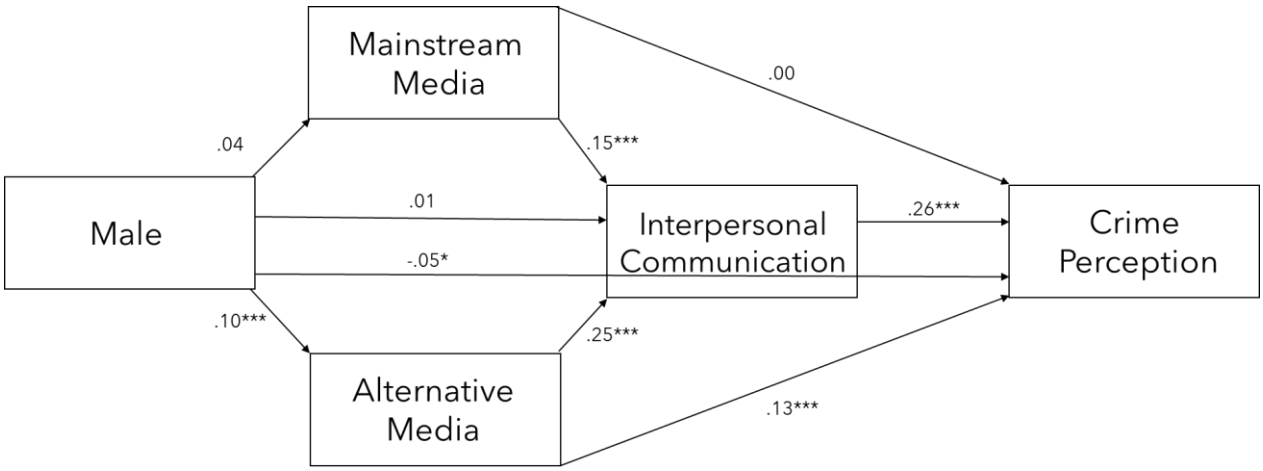
4.2.2 Crime

This study will now move on to examine if men's and women's media consumption affects their views on the issue of crime in society. In this analysis, alternative media makes a robust

predictor of perceiving the development of criminality in Swedish society as very critical, β = .13 ($z = 5.62$, $p < 0.001$). The total effect for male participants, -.0321 ($z = -1.41$, $p > 0.05$), is small and insignificant. Because the total effect is minimal, it is not suitable to divide the indirect and the total effect to see how much of the effect that is mediated. However, the standardised path coefficient, or the direct effect, for male is β = -.05 ($z = -2.30$, $p < 0.05$). It is negative and larger than the total effect, which, if both the results were significant, would indicate negative mediating effects. Continuing, there is a positive indirect effect through mainstream news media use, alternative media use and interpersonal communication (with a value of β = .02, $z = 2.64$, $p < 0.01$). This means that as a man, controlling for education, age, political interest and ideology, you are more likely to have less negative perceptions about the issue of crime than women. However, you are also more likely to seek out alternative media which, on the other hand, will make you more prone to discuss the issue with friends and family – having a substantial effect on issue perception – and make you more likely to form negative perceptions about the issue of crime.

In contrast to the descriptive data, which showed that men were more prone to have very negative beliefs about crime development, this analysis partly indicates the opposite. While men in the original model, without any control variables, are still more likely to perceive the issue very critically, this effect alters when adding mediating variables and the control variables. What this means, ultimately, is that rather than having firm believes about crime because of your gender, you perceive the issue of crime more based on your ideological leaning, political interest, age, media usage and how much you talk about the issue with friends and family. Moreover, which will be closer examined in the next section, gender may also moderate the effect of interpersonal communication, illustrating the complexity of designing and interpreting causal models. Lastly, the path model examining crime perceptions explains more variance in usage of mainstream news media, alternative media, interpersonal communication and perception than the previous model – 16%, 11%, 19% and 39% respectively.

Figure 8. Standardised estimates for men and crime perceptions



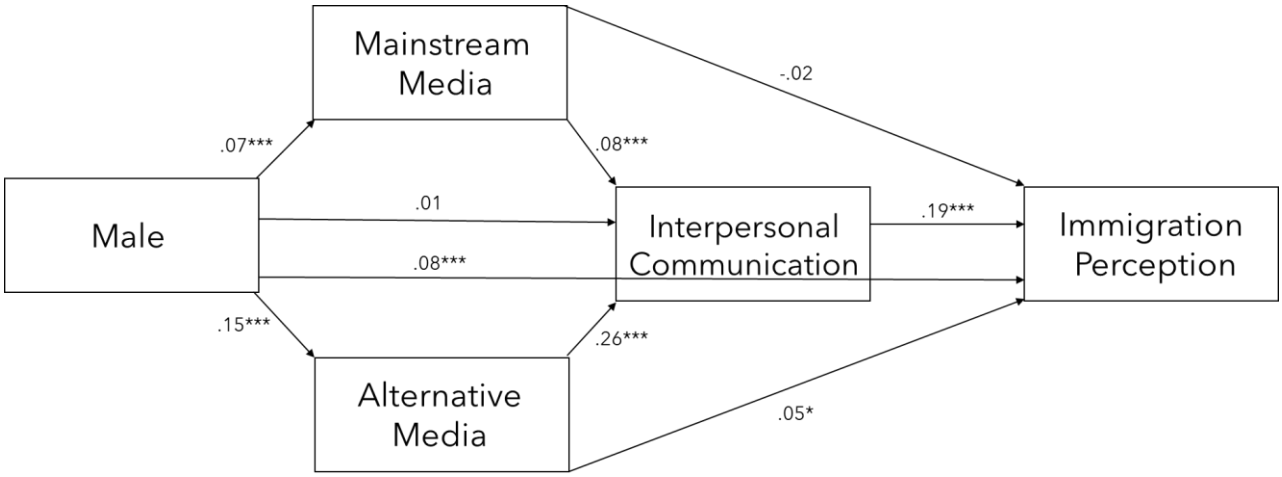
Note. N = 2,288; χ 2 = .; p = .000; CFI = 1.000; RMSEA = 0.000. The model is estimated with correlated residuals and control variables to improve model fit. The model controls for political interest, ideology, age and education. *p < .05. **p < .01. ***p < .001.

4.2.3 Immigration

Finally, the path analysis for immigration perception demonstrate that alternative media, as predicted, indeed influences immigration perception ($\beta = .05$, $z = 2.09$, $p < 0.05$). However, the effect is small and is nowhere close to the effect of ideology ($\beta = .39$, $z = 18.31$, $p < 0.001$), demonstrating that a right-leaning ideology is the strongest predictor of perceiving the issue of immigration in Sweden with scepticism. The total effect of male participants is $\beta = .09$ ($z = 3.72$, $p < 0.001$), while the direct effect is $\beta = .08$ ($z = 3.53$, $p < 0.05$). This means that 94% of the effect of gender on immigration perception is direct (direct effect/total effect). Furthermore, the indirect effect is insignificant, $\beta = .01$ ($z = 1.16$, $p > 0.05$), meaning that there are no mediating effects. If the coefficient had been significant, the part of the effect that is mediated through mainstream news media use, alternative media use and interpersonal communication would have been 6% (indirect effect/total effect). Thus, after controlling for age, education, ideology and political interest, the majority of the effect of gender on immigration perception is direct. Continuing, the model explains 16% variance in mainstream media use, 11% variance

in alternative media, 18% variance in interpersonal communication about immigration and 26% variance in immigration perception.

Figure 9. Standardised estimates for men and immigration perceptions



Note. N = 2,288; χ 2 = .; p = .000; CFI = 1.000; RMSEA = 0.000. The model is estimated with correlated residuals and control variables to improve model fit. The model controls for political interest, ideology, age and education. *p < .05. **p < .01. ***p < .001.

Considering the path models without control variables, however, provide substantially different results (see Tables 6, 7 and 8 in Appendices). In the case of climate change, gender has a significant total effect on climate change perception (β = -.07, z = -3.18, p = 0.001), and 67% of the effect is mediated through media usage and IPC. Gender does also have a significant total effect on crime perception (β =.06, z = 2.31, p < 0.05). Finally, while gender is still found to have a significant direct effect on immigration perception (β =.12, z = 4.73, p < .001), 22% of the total effect (β =.15, z = 6.03, p < .001), is mediated by media usage and IPC. Taken together, there are gendered differences in sociotropic beliefs, and these are bigger for some issues and enduring over time. However, when controlling for ideology, political interest, age and education, these differences cannot be explained by media usage and interpersonal communication, ultimately not lending support for H2.

This comparison is, albeit, just one part of the story. Media usage, issue perceptions and interpersonal communication – suggested to drive polarization processes – are expected to

affect each other reciprocally. In the next section, this thesis thus explores if reinforcing spirals ensue over time and whether they are conditioned by gender.

4.3 Part 3: Cross Lagged Panel-Analyses

To answer RQ4, RQ5, H3a and H3b, cross lagged panel-analyses were constructed. In order to conserve space, only results with controls will be presented. As the aim of the thesis primarily is to examine the polarizing effects of alternative media, most focus will be devoted to these results.

In the original models, no cross-lagged effects were modelled between the media use variables and interpersonal communication. However, as demonstrated in the theory chapter, prior research has demonstrated media effects on interpersonal communication (e.g. Howe & Krosnick, 2017) and Stata (through estat mindices) reported this modification indices as an omitted path in the fitted model. Thus, a simple path is allowed from the media use variable to interpersonal communication. Autoregressive paths between wave 1 and wave 3 were also allowed for all key variables (media use, issue perception and IPC), as Stata reported this modification indices as an omitted path.

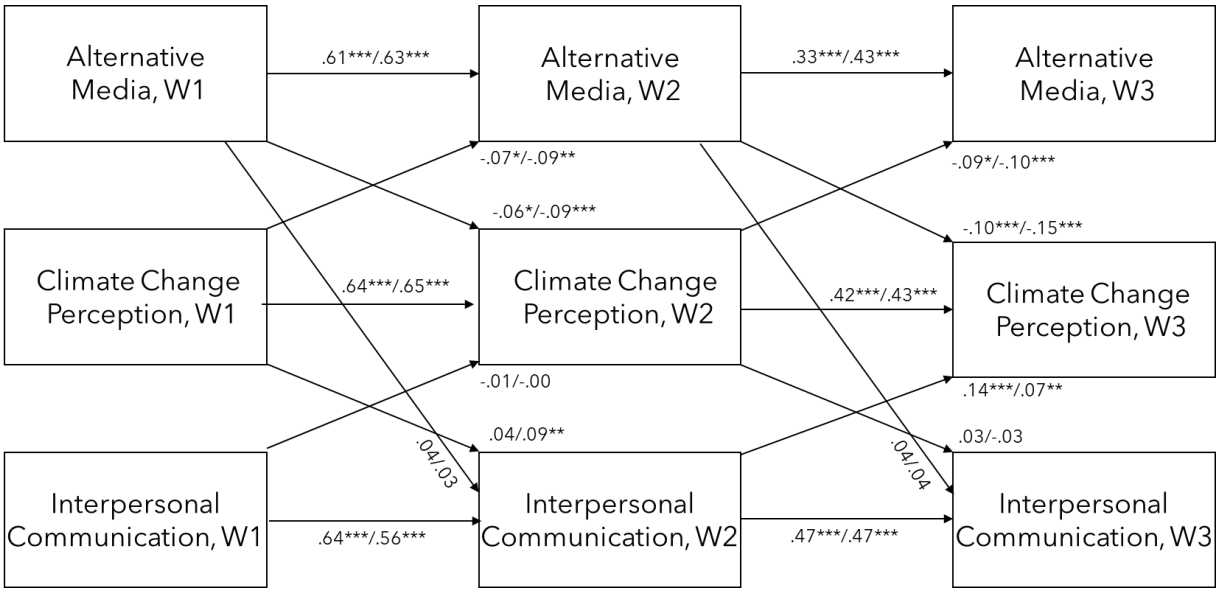
Furthermore, the cross-lagged models will be assessed using group comparisons. The value to the left in the figures represents the effect between the endogenous variables, moderated by the variable "female", whereas values to the right represent effects moderated by the variable "male". Models on the aggregate level were also conducted to compare with the moderating effects of gender. Due to space restrictions, these findings will only be presented in tables comparing the significant effects of the different issues.

Ensuing two sections are structured to mirror H3a and H3b, namely: an aggregate analysis of reciprocal relationships between media usage, issue perception and IPC, followed by an analysis considering the moderating effects of gender. Each section contains one or two figures presenting findings from the main cross-lagged model speaking to the reciprocal relationship between alternative media use, issue perception and interpersonal communication over time. Apart from the variables displayed in the figures, each equation also controls for age, education, ideology and political interest (see Tables 9-14 in Appendices for full models).

4.3.1 Reinforcement processes: media usage, issue perception and IPC

According to H3a, reinforcing spirals is predicted to exist between media usage, issue perceptions and interpersonal communication. Data in Figure 13 speaks particularly to this hypothesis.

Figure 10. Cross-lagged effects between alternative media use, climate change perception and interpersonal communication. Group comparison, female/male (standardised path coefficients).



Note. N = 2,288 estimates are standardised path coefficients. All equations control for age, education, ideology and political interest (see full model in Table 8, Appendix).

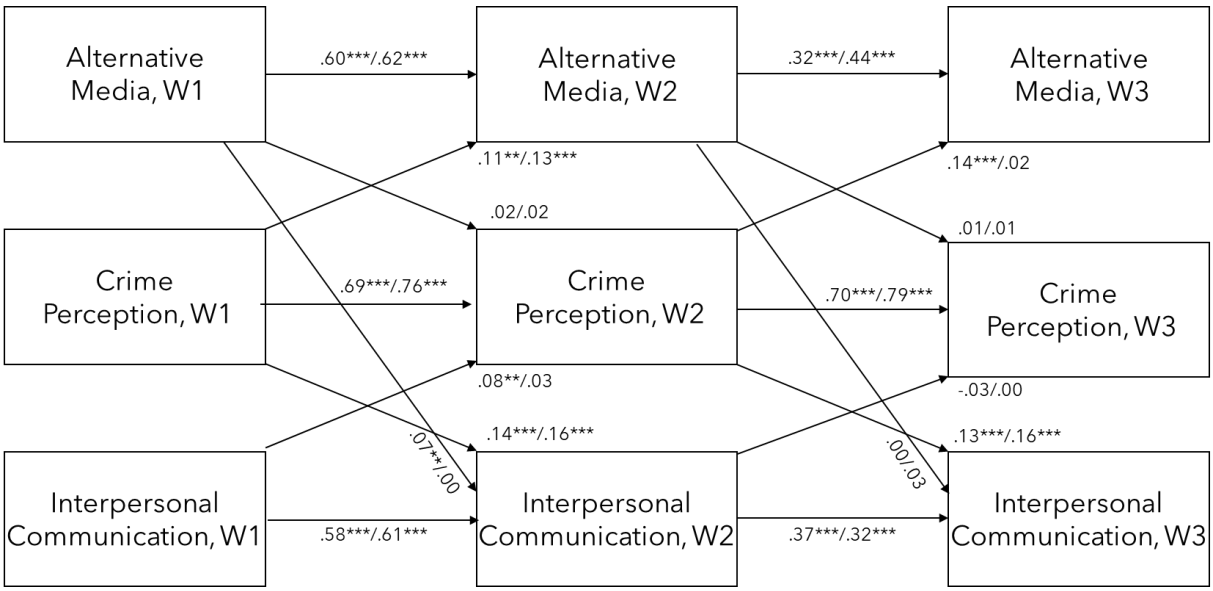
These findings reveal a pattern of reciprocal effects for alternative media and climate change perception. Climate change perception has an increasingly negative effect on alternative media use, just like alternative media use has an increasingly negative effect on climate change perception, controlling for lagged values of the dependent variables and the other control variables. This illustrates that people who are more sceptical towards climate change are more likely to seek out alternative media. At the same time, such news exposure also seems to influence climate change perception. Using alternative media has reinforcing, negative effects on how a person perceives climate change. This pattern lends support to the presence of reinforcing spirals over time, whereby perception influences selective news media use, which

in turn feeds back into perception. However, no significant reciprocal effects were found for mainstream media use and climate change perception. The path coefficients in Figure 13 furthermore indicate that media effects are somewhat stronger than selective effects (e.g. β = -.17 $p < .001$/ β = -.13, $p < .001$) in the case of climate change.

Overall, the findings from the cross-lagged models suggest a reciprocal relationship between alternative media and sociotropic beliefs. Comparing alternative and mainstream media, alternative media has stronger and more significant effects on both issue perceptions and IPC. Two observations are particularly noteworthy: (1) selection effects are in general stronger than media effects with the exception of climate change, and (2) the use of alternative media does not have a significant effect on perceptions of crime and immigration developments. When adding the control variables to these models, effects are overall low and insignificant.

Moreover, adding interpersonal communication to the cross-lagged models appears as a fruitful decision when studying the tables. Even though effects are not as strong as in the mediation models, IPC still has an overall significant effect on issue perceptions. Crime perception, particularly, has a significant effect on how much people discuss the issue with their friends and family. A reversed relationship is also true for women between the first and second wave, in which the interpersonal communication has a significant effect on crime perception (β = .08, $p < .01$), as demonstrated in Figure 15 below. In addition, alternative media is found to have a positive effect on IPC on the issues of crime and immigration. This means that people and women in particular, who consume alternative media are more likely to talk discuss the issues of crime and immigration with their friends and family. A corresponding relationship is, however, not found for climate change.

Figure 11. Cross-lagged effects between alternative media use, crime perception and interpersonal communication. Group comparison, female/male (standardised path coefficients).



Note. N = 2,288 estimates are standardised path coefficients. All equations control for age, education, ideology and political interest (see full model in Table 10).

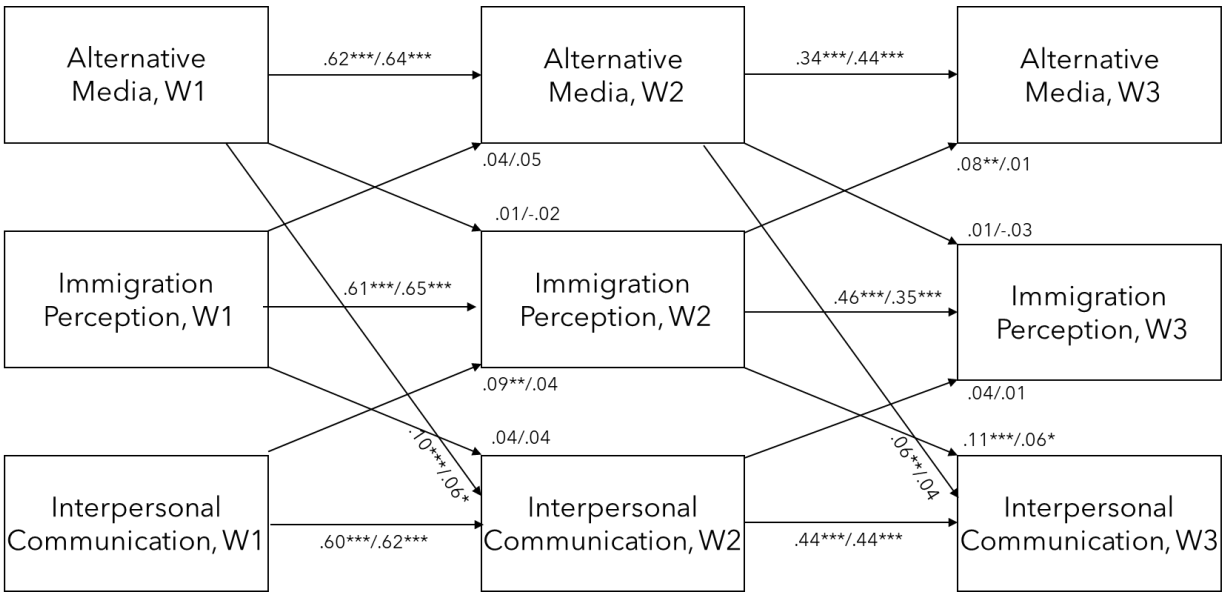
4.3.2 Reinforcement processes: gender differences

According to H3b, gender would moderate reinforcing spirals between media usage, issue perceptions and interpersonal communication. Findings from the cross-lagged analyses support this hypothesis. On all three issues, gender had a moderating effect on the RSM-processes. On the issue of crime, findings reveal spiralling selection effects for perception on alternative media consumption among women (W1-2: $\beta = .11$, $p < .001$/W2-3: $\beta = .14$, $p < .001$), controlling for lagged values of the dependent variables and the other control variables. This means that women who perceive the issue of crime in society as critical are more likely to seek out alternative media. Such finding also holds true for men between the first and the second wave ($\beta = .13$, $p < .001$). Furthermore, it is interesting to note that the autoregressive effect of perception significantly increases for both genders between the waves (see Figure 15 above). This could potentially indicate that the issue of crime during the second and third wave gained priority in the public or/and political agenda. With regards to mainstream media, a small, negative effect on crime perception among men is detected (W1-2: $\beta = -.06$, $p < .05$/W2-3: $\beta = -.05$, $p < .05$), meaning that men who seek out mainstream media are slightly less inclined to

acquire negative perceptions about criminality. Between the second and third wave, mainstream media also has a significant effect on interpersonal communication for both genders. While the strongest predictor of possessing negative beliefs among women is a lower level of education, a rightist ideology is the strongest predictor among male participants.

In general, the reciprocal influences appear stronger among women than men, and patterns of reinforcing effects are particularly indicated among female participants on the issue of immigration. Scepticism towards the issue of immigration makes women more inclined to discuss the topic with friends and family (W1-2: $\beta = .10$, $p < .001$) and seek out alternative media between the second and third wave ($\beta = .08$, $p < .01$). Similarly, such consumption exerts positive effects on interpersonal communication (W1-2: $\beta = .10$, $p < .01$), which in turn has significant effect on immigration perception (W1-2: $\beta = .09$, $p < .05$). However, these effects are not spiralling but rather stable throughout the study. The same pattern of influence does not hold true for men, except alternative media consumption also exerting a positive effect on interpersonal communication, as demonstrated in Figure 17 below. Similar to the path analysis, a rightist ideology is the strongest predictor of possessing negative immigration perceptions throughout the study for both men and women (W1-2: $\beta = .17$, $p < .001$/W1-2: $\beta = .16$, $p < .001$).

Figure 12. Cross-lagged effects between alternative media use, immigration perception and interpersonal communication. Group comparison, female/male (standardised path coefficients).



Note. N = 2,288 estimates are standardised path coefficients. All equations control for age, education, ideology and political interest (see full model in Table 10).

In sum, the results answers RQ4 and RQ5. The relationship between media usage and sociotropic beliefs are primarily characterized by mutually reinforcing spirals. However, the effect of using alternative media on issue perception (media effects) is generally weaker than the effect of issue perception on using alternative media (selection effect), as displayed in the summarising effect tables below. The findings furthermore imply that such processes are conditioned by gender. In the case of immigration, reinforcing spiral processes between IPC and issue perception are observed for women, while corresponding processes are observed among men on the issue of climate change.

Table 4. Comparing significant effects on the issue of climate change

	Perception effects	Alt media effects	IPC effects
Men	**III**	**II**	**I**
Women	**II**	**II**	**I**
Aggregate	**III**	**II**	**I**

Note. Equations control for age, education, ideology and political interest (see full model in Table 9, Appendices).

Table 5. Comparing significant effects on the issue of crime

	Perception effects	Alt media effects	IPC effects
Men	**III**		
Women	**IIII**	**I**	**I**
Aggregate	**IIII**	**II**	**I**

Note. Equations control for age, education, ideology and political interest (see full model in Table 11, Appendices).

Table 6. Comparing significant effects on the issue of immigration

	Perception effects	Alt media effects	IPC effects
Men	**I**	**I**	
Women	**II**	**II**	**I**
Aggregate	**III**	**II**	**I**

Note. Equations control for age, education, ideology and political interest (see full model in Table 13, Appendices).

5 Discussion

This thesis aimed to examine if the fragmented media environment affects societal processes of belief polarization and whether these processes differ between men and women. To examine gender dynamics in societal-level issue perception, the study employed theoretical insights from the RSM, theories of sociotropic beliefs and studies on gendered differences in opinion formation and media use. In the consecutive section, five key findings will be discussed and analysed closer.

5.1 No signs of polarization – but gender effects on issue perceptions

Inspired by DiMaggio et al. (1996), this thesis suggested three dimensions of polarization in the public: the dispersal of perceptions, the degree to which perceptions cluster around two opposing positions with few moderate perceptions in between and lastly "identity-based polarization" – referring to the existence of systematic differences between men and women. On all dimensions, this study found mostly convergence, not polarization. The data thus provide slim evidence of a growing gender gap in belief polarization. Nevertheless, men's and women's responses diverged substantially, and a significant effect of gender on immigration perception remained even when all mediating factors and control variables were taken into consideration. This means that regardless of ideological leaning, political interest, degree of social interaction, media consumption, education and age – men and women display diverging perceptions about immigration in the Swedish society. This makes the issue distinctly different from the other two and raises the question: what is it then that makes men and women different? If consulting gender theory, the difference between men's and women's perception of immigration, may, for instance, be fuelled by women's greater support for egalitarianism and conceivably humanitarianism which, in turn, could arise from differences in basic personality traits, such as compassion. However, these traits were supposedly captured by controlling for ideology. Could further focus on personality traits explain the difference? Is it related to something biological? As mentioned aloft, difference research disciplines usually employ different explanatory mechanisms. It is also possible, or rather likely, that the gender gap across the issues does not have one common origin. Women's greater self-rated compassion (conveyed by predominant leftist ideology) is unlikely to account for their increasingly negative perception of criminality

in society, which is perhaps more likely rooted in women's stronger sense of physiological vulnerability. These are, nonetheless, questions which ought to be considered in future research.

5.2 Significant gender differences in media usage

The second finding which deserves emphasis is how procedures of selective exposure differ between men and women. As predicted by previous research, men are considerably more prone to turn to alternative media, and this holds even when adding control variables. Whereas women are more likely to rely on mainstream media than alternative media for news updates, this study shows that men seek out alternative media more often than mainstream media. According to the analyses, the typical alternative media consumer is a right-wing male who is politically interested, which resembles previous research results (e.g. Digital News Report, 2018; Stroud, 2011). While the findings emphasized aloft bring answers to RQ1 (How do sociotropic beliefs differ between men and women, and how do these differences develop over time?), the results from the path analyses further answers RQ3 (To what extent are gender differences in sociotropic beliefs explained by media usage and interpersonal communication?). Studying the indirect effect of male and direct effect of alternative media on climate change, immigration and crime perception, it appears as if media usage partly explains the gender difference in issue perception. Although it is not possible to draw any firm conclusions about what alternative media constitutes or which messages that are disseminated by these platforms from the data, the path analyses illustrate the presence of systematic patterns of ideological news selection in such way that right-leaning people are more prone to seek out alternative media. This is an indication that these platforms and their media content indeed may be politically biased. Similarly, alternative media consumption displays a negative effect on climate change perception and positive effects on crime and immigration perception, which fits with the stereotypical far-right perspective of these issues. Finally, even though alternative media users seemingly are developing more critical perceptions of several societal issues – it is mostly in conformity with the rest of the public.

5.3 Interpersonal communication – stronger effect on women

Continuing with H2b, this hypothesis predicted that gendered differences in sociotropic beliefs are explained by a disparity in interpersonal communication. While this hypothesis was not supported, findings did yet suggest that sociotropic beliefs develop in relation to communicative practices within people's social networks. Firstly, issue perceptions, as projected, were found to have reciprocal effects on interpersonal communication in both the path analyses and the cross-lagged panel models. Even though academia has gradually acknowledged that interpersonal discussion may have interactive consequences on the impact of media exposure, the theoretical integration and empirical validation of interpersonal communication into mass media effects are still modest. This thesis empirically yet validates the notion that high levels of interpersonal communication amplify the selected media effect, though it seemingly diminishes the effect of alternative media in the context of climate change. It, therefore, appears to serve as a social "linchpin" upon which alternative media exposure is evaluated.

Secondly, prior studies have found that people who believe their opinions are out of step with those of the perceived majority are reluctant to voice such opinions (Glynn & Park, 1997). Such finding is presumably also true for issue perception. However, as previously mentioned, this suppression of voicing an opinion or perception is less pronounced among people who attach more importance to the issue, making these individuals more inclined to express their thoughts regardless of the perceived majority opinion. The data partially support this notion: men and women who are more critical the development of climate change, immigration or criminality are more likely to engage in discussion about these issues with friends and family than others. The same is true for alternative media users on the issues of immigration and crime. Once again, it must be stressed that perceiving the development of climate change, immigration or criminality negatively do not deviate utterly with the majority according to the data. However, the study found backing for the idea that women are more susceptible to influence through communication than men. This supports hypothesis H3b and provides further empirical validation of – not only the integration of interpersonal communication into RSM-studies – the magnitude of gender dynamics.

5.4 Mediation, reciprocal influences and reinforcing spirals

Overall, the results suggest that selective exposure to alternative media is likely to be an important factor that contributes to the maintenance and reinforcement of one's perception of climate change, immigration and criminality, answering RQ5. Looking at each issue separately, nevertheless, media as well as the selection effects, differ substantially. With regards to effect strength, however, the effect of issue perception on using alternative media was more substantial than the effect of using alternative media on issue perception (as previously displayed in Table 4, 5 and 6). On the issue of immigration, reinforcing, though not spiralling, processes were found among women. Nonetheless, the path analysis demonstrates, as mentioned above, that male has a significant, negative effect on immigration perception. This means that women are more prone to develop increasingly sceptical perceptions about immigration via interaction within their social network and selective exposure, while neither mediation analyses nor the RSM can explain men's perception. Distinguished patterns of reinforcing spirals were yet detected on the issue of climate change. People who do not perceive climate change developments as very negative are more likely to select alternative media, and such consumption reinforces these perceptions of climate change. The same holds reversely.

Lastly, previous studies suggesting that alternative media consumption, in conformity with RSM rhetoric, may strengthen and reinforce people's pre-existing beliefs, thus seem to be accurate. However, the findings of this study indicate that the main danger of a fragmented media environment in which alternative media is expanding is not the polarization of ordinary people, nor men and women as subgroups – but the risk of a growing disconnect between the alternative media audience and the modestly involved masses. These findings are largely in line with Levendusky (2013, p.2), who suggests that partisan, biased programs only take viewers who are already polarized and make them even more extreme, concluding that "[p]artisan media therefore heighten mass polarization not by turning moderates into extremists, but rather by further polarizing those who are already away from the political center." Moreover, while most people still rely heavily on mainstream media and will not select nor be directly targeted by alternative media, there is yet reason to believe that alternative media messages will be disseminated through communication practices, reaching a far bigger audience than is observed in the data.

6 Conclusion

In academia, as well as in mainstream media, people are voicing concern that a fragmented media environment with an immense increase of politically biased alternative media may motivate selective exposure, in turn leading to increasingly polarized perceptions of reality among the public. In the meantime, a growing ideological gender gap is noted. Hence, this study examines media-driven belief polarization processes, focusing on alternative media usage and gender contingent differences. Theoretically building on the RSM (Slater, 2007, 2015), the thesis used a three-wave panel survey conducted in Sweden over a period of two years to study the extent to which selective exposure occurs and the mutual influences between selective exposure and prior beliefs. It also aimed to add to the field of longitudinal studies of the RSM by incorporating interpersonal communication to disentangle its effect of in the RSM-process.

In comparison to most polarization and RSM-research, this study does not examine public opinion or attitudes, but people's perceptions of reality. The perception focus is crucial to be able to provide explanations or predictions of what may happen in a later stage of a causal chain. For instance, knowing how people perceive the issue of immigration may hint how they will vote in the next election. An individual's perceptions of reality are furthermore expected to influence other attitudes and opinions. Discrepancies in perceptions of societal-level issues among the public is also a central indicator of polarization. A well-functioning democratic discourse requires that most people, at least to some extent, agree on the state of affairs. A society in which citizens have widely differing perceptions of reality is more polarized and potentially more conflict-ridden than a society in which the majority shares roughly the same view of factual relations (Nordin & Oscarsson, 2015). The study thus observed the factors driving alternative media usage and how such usage influences men's and women's formation and maintenance of perceptions towards three societal level issues: climate change, immigration and crime. It hypothesised that alternative media usage is partly driven by selective exposure, explained by prior beliefs. Similarly, such beliefs should, at least partly, be formed and maintained by media effects. Selective exposure should thus explain issue perception. In other words, this thesis has examined the power dynamics between media effects and selective exposure. It also studied if reinforcing processes differ between men and women, hypothesising that they would – an assumption which was supported. However, the results do not indicate that

perceptions of societal-level issues generally are becoming more conflicting. Throughout the panel-study, perceptions among the public even converged on two out of three issues. For the issue of climate change, the variance in perceptions was very low, yet increased slightly in the third wave. With regards to gender, there were small changes in the distribution of assessments over time. The thesis also shows that alternative media may influence the broader public through a classic two-step flow process. Having equipped with the information and views provided by the alternative media, the people actively seeking-out alternative media may become opinion leaders for their friends and family. Furthermore, it deems reasonable to expect that this audience also disseminates the messages from alternative media with their friends via social media, although this study cannot validate this assumption. In that case, however, the attentive alternative media audience – although constituting a minority in the society – may exert a disproportionately large influence on issue perception among the public.

Considering which hypotheses were supported or not, results are not self-explanatory. Considering H1 and H3b, there is no universal threshold for what constitutes a perception divergence and how substantial effect differences are required to be able to argue that women are more affected by these RSM-mechanisms than men. However, this thesis has argued that its findings suggest pertinent, lasting gender differences, as displayed in Table 7 below.

Table 7. Answering the hypotheses

	Supported	Partly supported	Not supported
H1	X		
H2a			X
H2b			X
H3a		X	
H3b	X		

This thesis hence suggests that alternative media can have polarizing effects on societal level issue perception. While men are more prone to seek out alternative media in the first place, women who turn to these platforms are subjects for more substantial RSM processes – especially when accounting for interpersonal communication. This partly indicates gender contingent differences in tendency of polarization through RSM-processes and gender as a significant predictor of issue perception. However, this study did not find support for a growing gender gap in how men and women perceive salient issues on the public and political agenda, but rather indications of convergence. Instead of group formations with distinctive irreconcilable issue perceptions, the data do neither speak to group formation at the centre. Instead, data from this panel study indicates that the public as a whole is developing increasingly negative perceptions about the issue of immigration and crime. In other words, patterns of belief polarization in the Swedish society does not point to entire populations gaining more divergent issue perceptions, but rather that the gap between centrist individuals and individuals whom already obtain critical perceptions, may be increasing through selective exposure.

Taken together, the key finding of this thesis is that gender indeed matters. The results specifically point towards the following:

(1) Substantial and significant gender gaps in sociotropic beliefs over time.
(2) The disparity in media usage and interpersonal communication cannot account for these gender differences when controlling for ideology and political interest.
(3) Signs of reinforcing spirals between alternative media, sociotropic beliefs and interpersonal communication – yet partially conditioned by gender.

6.1 Limitations

Like any other study, this is not one without flaws or limitations. To begin with, one limitation with the use of SEM/cross-lagged models is that it is not possible to examine individual differences in time. It would, for instance, have been valuable to examine individual differences in terms of media usage. From the analyses conducted in this study, it is not possible to distinguish if alternative media users refrain from mainstream media, or if they rather have a mixed media diet. From a democratic perspective, it could be problematic if some groups in

society choose to distance themselves from mainstream platforms of public discourse and isolate themselves in counter-publics. There is a risk that discourses of mistrust and alienation in conventional democratic channels could be fostered and amplified in such environments (Kobayashi & Ikeda, 2009).

Moreover, it is not, according to Slater (2015), a matter of linear growth for both media use and attitude/opinion/perception strength, but limited times in which reinforcing spirals occur. How to measure sequential dynamics is yet a topic of discussion among scholars, and whether the panel study examined in this thesis successfully managed to capture these dynamics remains up to future studies to establish.

Another limitation of the study is the mainstream media index. As the aim of this thesis primarily was to examine polarizing effects of alternative media, platforms which commonly position themselves as correctives of the mainstream news media, mainstream media was foremost considered as a dichotomous branch of news media orientation. In retrospect, it would perhaps have been more advantageous to differentiate between broadcast newspaper, tabloids, commercial tv and public service to get a fuller understanding to what extent alternative media differ from the news media most people consume. This would, nonetheless, require more time and space. Another option would have been to focus on partisan selective exposure, like most studies interested in the RSM and polarization processes. In the Swedish case, however, the difference in the editorial content is not as profound as in countries with other media systems.

Relating to RQ3 and what role interpersonal communication plays in an RSM-process, the items in the indexes do not answer how the respondents' social network composition looks like. While this thesis, based on prior research, assumes that most people pertain to homogenous social networks, this is naturally not always the case, and other studies have found that people who are surrounded by heterogeneous environments are less likely to resist dissonant political media messages (Song & Boomgaarden, 2017). Thus, the analyses and interpretation of interpersonal communication effects are limited.

Finally, one of the most interesting questions about gender differences in perception development and media use is their origins, as the answer may hold the key to the future

dynamics of the gender gap in public opinion. According to Huddy et al. (2008, p. 48) "Political differences emerge from elemental differences between men and women that cross political context, fleeting and more ephemeral factors embedded within specific cultures and polities, or some mixture of the two." Because this thesis relies upon secondary data (and it is beyond the scope of the study to conduct supplementary data), it cannot fully account for the demonstrated gender differences. It would then have been, if not beneficial – interesting, to compare for instance how personality traits, perceived vulnerability, nationality, culture and values (more pinned down than controlling for ideology) affect perception development and maintenance.

6.2 Future research

As recognised in the introduction, the literature pool on the RSM lacks research with a gender approach. While some studies have been conducted focusing on selective exposure, no studies to this author's knowledge have examined if and how men and women are equally susceptible to such exposure. Thus, further attention should be devoted to gender as a key variable (rather than a control variable) in media effect research to determine whether or not news media exposure affects men and women differently. This should preferably be done utilizing a multidisciplinary approach that enabled an assessment of the combined influence of clusters of factors that previously have been identified as drivers of gender differences. Moreover, the reason for more male than female responses in the issue perception-indexes – albeit a majority of the respondents were women – was most likely because more women chose the "don't know"-option. If a similar pattern can be detected in other perception-studies, it is something which ought to be paid more attention. Can gender gaps in news media consumption and interpersonal communication explain these, ostensibly, knowledge gaps? Are they even knowledge gaps, or are men simply more inclined to guess (as predicted by theories of risk aversion)? Are women more prone to self-doubt? Regardless of which underlying factors are at play, this feasible tendency may lead to inflated estimates of men's political and societal knowledge relative to that of women.

Furthermore, more research should be devoted to why people are seeking out alternative media outside the conventional news providers. Pertaining to alternative media as a liberating force that gives voice to marginalized groups in the hegemonic discourse, it may be a sign that some individuals feel that they cannot participate on equal terms in mainstream media. This may, in

turn, become an impediment to deliberation between conflicting groups, challenging the democratic system (Holt, 2018). Besides, in order to come to more valid conclusions regarding alternative media's effect on polarization, more rigorous empirical analysis of reach, impact and reactions from other media, needs to be done.

Additionally, considering interpersonal communication's possibly moderating effect on climate change perception among alternative media users, future studies should pay more attention to interpersonal communication's potential conditioning effects on (de)polarization. In addition to its direct and conditioning effect on perceptions, the composition of a person's immediate social environment should be taken into account as this may bolster or alter the influence of mass media exposure (e.g., Song & Boomgaarden, 2017).

Finally, as mentioned aloft, belief studies are essential to provide explanations or predictions of how people will act in the future. Perceptions are also expected to influence attitudes and opinions. In this respect, coupled with the significant findings of this thesis, perception of reality is an under-researched area in Swedish opinion and media studies. To maintain a well-operating democratic discourse, or to be able to foresee political polarization, it is crucial to learn more about how perceptions of reality are created, disseminated and changed. It would also be intriguing to make systematic comparisons between people's subjective perceptions of reality and more objective indicators of relationships, and how they vary with each other over time. How accurate are people's perceptions of the world around them? What kind of knowledge do they have? By studying people's perceptions of three societal-level issues, this thesis found that people are often systematically coloured by ideological predispositions such as left-right ideology, media usage, social networks, or their gender. While it is hard to draw any firm conclusions, it does indeed seem like people are wearing different glasses when looking at the world. On this note, it would also be interesting to compare if and to what extent such glasses differ cross-nationally, as results suggested by this thesis only account for a Swedish context. Such studies would, amongst others, increase the odds of foreseeing polarization processes on a larger scale. Thus, systematic comparisons between nations could prove beneficial.

Reference list

Acock, A (2013*). Discovering Structural Equation Modeling Using Stata.* College Station: Stata Press.

Allen, M. (2017). *The sage encyclopedia of communication research methods*. Thousand Oaks, CA: SAGE Publications.

Allison, P. D. (2009). *Quantitative Applications in the Social Sciences: Fixed effects regression models*. Thousand Oaks, CA: SAGE Publications.

Andersen, K., Bjarnøe, C., Albæk, E., & De Vreese, C. H. (2016). How news type matters: Indirect effects of media use on political participation through knowledge and efficacy. *Journal of Media Psychology: Theories, Methods, and Applications, 28*(3), 111–122.

Babin, B. J. & Boles, J.S. (1998). Employee behavior in a service environment: a model and test of potential differences between men and women. *Journal of Marketing, 62*(2), 77-91.

Beam, M. A., Hutchens, M. J. & Hmielowski, J. D. (2018) Facebook news and (depolarization): reinforcing spirals in the 2016 US election. *Information, Communication & Society, 39*(7), 340-958.

Benesch C. (2012). An empirical analysis of the gender gap in news consumption. *Journal of Media Economics, 25*, 147-167.

Beutel, A. M., & Marini, M. M. (1995). Gender and Values. *American Sociological Review, 60*, 436-48.

Blekesaune, A., Elvestad, E., & Aalberg, T. (2012). Tuning out the world of news and current affairs — an empirical study of Europe's disconnected citizens. *European Sociological Review*, 28(1), 110–126.

Boati, D. (2019, April 9). Klimat, brott och migration väljarnas viktigaste EU-frågor. *Sveriges Television*. Retrieved 20-03-27, from: https://www.svt.se/nyheter/inrikes/klimat-brott-och-migration-valjarnas-viktigaste-eu-fragor.

Brousmiche, K., Kant, J., Sabouret, N., & Prenot-Guinard, F. (2016). From Beliefs to Attitudes: Polias, a Model of Attitude Dynamics Based on Cognitive Modeling and Field Data. *Journal of Artificial Societies and Social Simulation, 19*(44).

Brottförebygganderådet. (2019). *Kriminalstatistik 2019, Anmälda brott – Slutaktig statistik*. Retrieved 20-03-24, from: https://www.bra.se/download/18.7d27ebd916ea64de5304e10e/1585653308304/Sammanfattning_anmalda_2019.pdf

Dahlgren, P. M., Shehata, A., & Strömbäck, J. (2019). Reinforcing spirals at work? Mutual influences between selective news exposure and ideological leaning. *European Journal of Communication, 34*(2), 159–174.

Dagens Nyheter. (2019, December 31). *De som gjorde 10-talet till det destruktiva decenniet.* Retrieved 20-02-27, from: https://www.dn.se/ledare/de-som-gjorde-10-talet-till-det-destruktiva-decenniet/

De Vreese, C & Boomgaarden, H. (2006) Media Message Flows and Interpersonal communication: The Conditional Nature of Effects on Public Opinion. *Communication Research, 33*(1), 19-37.

Delli Carpini, M. X., Cook, F. L. & Jacobs, L. R. (2004) Public Deliberations, Discursive Participation and Citizen Engagement: A Review of the Empirical Literature. *Annual Review of Political Science, 7*(1), 315–344.

Djerf-Pierre, M. & Wängnerud, L. (2016) Gender and Sociotropic Anxiety: Explaining Gender Differences in Anxiety to Social Risks and Threats, *International Journal of Public Opinion Research, 28*(2), 217–240.

DiMaggio P, Evans J, Bryson B. 1996. Have Americans' social attitudes become more polarized? *American Journal of Sociology, 102*(3), 690-755.

Dvir Gvirsman, S. (2014). It's not that we don't know, it's that we don't care: Explaining why selective exposure polarizes attitudes. *Mass Communication & Society*, 17(1), 74-97.

Eagly, A. H. (1983). Gender and social influence: A social psychological analysis. *American Psychologist, 38*(9), 971–981.

Fazio, R. H., Powell, M. C., & Williams, C. J. (1989). The role of attitude accessibility in the attitude-to-behavior process. *Journal of Consumer Research, 16,* 280– 288.

Feldman, L., Myers, T. A., Hmielowski, J.D., & Leiserowitz, A. (2014). The Mutual Reinforcement of Media Selectivity and Effects: Testing the Reinforcing Spirals Framework in the Context of Global Warming. *Journal of Communication, 64,* 590-611.

Finkel, S. E. (2008). Linear panel analysis. In Menard S. (Ed.), *Handbook of longitudinal research: Design measurement, and analysis* (pp. 475–504). Burlington, MA: Elsevier/Academic Press.

Fiorina, M. P. & Abrams, S. J. (2008) Political Polarization in the American Public. In Levi, M., Jackman, S. & Roseblum, N. eds., *Annual Review of Political Science, 11*. Palo Alto, CA: Annudal Reveiws, 563-588.

Glynn, C. & Park, E. (1997). Reference groups, opinion intensity, and public opinion expression. *International Journal of Public Opinion Research, 9*(3), 213-232.

Hamaker, E.L., Kuiper, R.M., & Grasman, R. (2015). A critique of the cross-lagged panel model. *Psychological Methods, 20,* 102-116

Harrison, T.M., Stephen, T.D., Husson, W., & Fehr, B.J. (1991). Images versus issues in the 1984 presidential election: Differences between men and women. *Human Communication Research, 18*, 209-227.

Holt, K. (2018). Alternative Media and the Notion of Anti-Systemness : Towards an Analytical Framework. *Media and Communication, 6*, 49-57.

Holt, K., Ustad Figenschou, T., Frischlich, L. (2019). Key Dimensions of Alternative News Media. *Digital Journalism, 7*, 860-869.

Howe, L. C. & Krosnick, J. A. (2017) Attitude Strength. *Annual Review of Psychology, 68*, 327-351.

Huddy, L., Cassese, E., & Lizotte, M.-K. (2008). Gender, public opinion, and political reasoning. In C. Wolbrecht, K. Beckwith & L. Baldez (Eds.), *Political women and American democracy*, 31–49. New York, NY: Cambridge University Press.

Hutchens, M. J., Hmielowski, J. D. & Beam, M. A. (2019) Reinforcing spirals of political discussion and affective polarization. *Communication Monographs, 86*(3), 357-376.

Kahan, D. M. (2015) The Politically Motivated Reasoning Paradigm. *Emerging Trends in Social & Behavioral Sciences*, Forthcoming. Retrieved 20-03-21, from: https://ssrn.com/abstract=2703011.

Kaplan, D. (2008). *Structural Equation Modeling: Foundations and Extensions* (2nd ed.). SAGE.

Katz, E., & Lazarsfeld, P. F. (1955). Personal influence: the part played by people in the flow of mass communications. *Free Press*.

Kenix, L. J. (2011). *Alternative and mainstream media: The converging spectrum.* London & New York: Bloomsbury Academic.

Knobloch-Westerwick, S., & Alter, S. (2007). Sex-segregated news consumption: Origins of gender-typed patterns of Americans' selective exposure to news topics. *Journal of Communication, 57*, 739-758.

Knobloch-Westerwick, S., & Hoplamazian, G. J. (2012). Gendering the self: Selective magazine reading and reinforcement of gender conformity. *Communication Research, 39*, 358–384.

Kobayashi, T., & Ikeda, K. I. (2009). Selective exposure in political web browsing: Empirical verification of 'cyber-balkanization' in Japan and the USA. *Information, Communication & Society, 12*(6), 929–953.

Kumlin, S. (2004). The Personal and the Political. In: *The Personal and the Political: How Personal Welfare State Experiences Affect Political Trust and Ideology*. Political Evolution and Institutional Change. Palgrave Macmillan, New York.

Leung, D. K., & Lee, F. L. (2014). Cultivating an active online counterpublic examining usage and political impact of internet alternative media. *The International Journal of Press/Politics, 19*(3), 340–359

Levendusky, M. (2017). Partisan Media & Polarization: Challenges for Future Work. *Oxford Research Encyclopedia of Politics*. London, UK: Oxford University Press.

Levendusky, M. (2013). Why Do Partisan Media Polarize Viewers?. *American Journal of Political Science, 57*(3), 611-623.

Lippmann, W. (1922). The mental age of Americans. *New Republic, 32*, 213–215.

Lizotte, M-K. & Sidman, A. (2009) Explaining the Gender Gap in Political Knowledge. *Politics & Gender, 5*, 127-151.

Martinsson, J. & Weissenbilder, M. (2018) *Viktiga valfrågor i Sverige – från miljö till invandring*. *Sprickor i fasaden.* Gothenburg: Gothenburg University, 199.132.

Martinsson, J., Andreasson, M., Andersson, F., Carlsten Rosberg, J. (2020). *LORE field report, The Cultivation Panel – 2018-2019.* Gothenburg: University of Gothenburg, LORE.

Martinsson, J. & Andersson, U. (2019). Svenska Trender 1986–2018. *Den nationella SOM-undersökningen.* Göteborg: SOM-institutet vid Göteborgs universitet.

McCombs, M. E. (2014). Setting the agenda: The mass media and public opinion (2nd ed.). Cambridge, UK: Polity Press.

McCombs, M. & Shaw, D. L. (1993) The Evolution of Agenda-Setting Research: Twenty-Five Years in the Marketplace of Ideas. Journal of Communication, Vol. 43(2), p. 58-67.

McCright, M. A. (2010) The effects of gender on climate change knowledge and concern in the American public. *Population and Environment. Vol. 32(1). p. 66-87.*

Mehmetoglu, M. & Jakobsen, T. G. (2017). *Applied Statistics using Stata: A Guide for the Social Sciences.* California: Sage Publications.

Mutz, D. C. (1998). *Impersonal influence: How perceptions of mass collectives affect political attitudes.* Cambridge University Press.

Naurin, E. & Öhberg, P. (2019). Kvinnors och mäns politiska åsikter och intresse under 30 år. In Andersson, U., Rönnerstrand, B., Öhberg, P. & Bergström, A. (Red) *Storm och stiltje*. Göteborgs universitet: SOM-institutet.

Newman, N., Fletcher, R., Kalogeropoulos, A., Levy, D. A. L., & Kleis Nielsen, R. (2018). *Reuters institute digital news Report 2018.* Retrieved 20-02-24, from: https:// reutersinstitute.politics.ox.ac.uk/sites/default/files/ digital-news-report-2018.pdf

Nordin, Lukas & Oscarsson, Henrik (2015) Verklighetens folk? In Bergström, A., Johansson, B., Oscarsson, H. & Oskarson, M. (Red) *Fragment.* Göteborgs universitet: SOM-institutet.

Novus. (2018, November 26). *Rapport: Sjukvården fortsatt väljarnas viktigaste fråga.* Novus Group International AB. Retrieved, 20-05-02, from: https://novus.se/wp-content/uploads/2018/12/eac31f61b6ba2bfb0ae92758585b5796.pdf

Peter, J., & Valkenburg, P. M. (2009). Adolescents' exposure to sexually explicit internet material and notions of women as sex objects: Assessing causality and underlying processes. *Journal of Communication, 59,* 407–433.

Pew Research Center (2008). *Where men and women differ in following the news.* Retrieved 20-01-30, from: http://www.pewresearch.org/2008/02/06/where-men-andwomen-differ-in-following-the-news/

Prior, M. (2013). Media and political polarization. *Annual Review of Political Science, 16,* 101–127.

Reed, J. (2006). Gender Differences in Political Attitudes and Persuasion. *Race, Gender & Class, 13*(1/2), 59-69.

Sandberg, L. & Ihlebæk, K. A. (2019). Start Sharing the News: Exploring the Link Between Right-wing Alternative Media and Social Media During the Swedish 2018 Election. *Statsvetenskaplig tidskrift, 121*(3).

Schmitt-Beck, R. (2003) Mass communication, personal communication and vote choice: The filter hypothesis of media influence in comparative perspective. *British Journal of Political Science, 33,* 233-259.

Schreiber, D. (2007). "Political Cognition as Social Cognition: Are We All Political Sophisticates?" In *The Affect Effect: Dynamics of Emotion in Political Thinking and Behavior.* Eds. Neuman, R., Marcus, G. E., Crigler, A. N. & Mackuen, M. Chicago: University of Chicago Press.

Shehata, A., Johansson, J., Johansson, B. & Anderson, K. (2020). An Unusual Summer: Climate Change Frame Acceptance and Resistance in One-sided Framing Environments. Unpublished manuscript.

Slater, M. D. (2015) Reinforcing spirals model: Conceptualizing the relationship between media content exposure and the development and maintenance of attitudes. *Media Psychology, 18*(3), 370–395.

Slater, M. D. (2007). Reinforcing spirals: The mutual influence of media selectivity and media effects and their impact on individual behavior and social identity. *Communication Theory, 17,* 281–303.

Song, H. & Boomgaarden, H. G. (2017). Dynamic spirals put to test: An agent-based model of reinforcing spirals between selective exposure, interpersonal networks, and attitude polarization. *Journal of communication, 67,* 256-281.

Furtenbach, F. & Westerholm, J. (2019, October 27). Mediemätaren oktober. *Ekot.* Sveriges Radio. Retrieved 200403, from: https://sverigesradio.se/sida/artikel.aspx?programid=83&artikel=7327248

Stroud, N. (2011). Niche News. The politics of news choice. *New York Oxford University Press, 7*.

Stroud, N. (2010). Polarization and partisan selective exposure. *Journal of Communication, 60*, 536 – 576.

Strömbäck, J., Djerf-Pierre, M., & Shehata, A. (2013). The dynamics of political interest and new media consumption: A longitudinal perspective. *International Journal of Public Opinion Research, 25*, 414–435.

Sturgis, P. (2016) *Structural Equation Modelling (SEM): What it is and what it isn't*. National Centre for Research Methods online learning resource. Retrieved 20-03-25, from: https://www.ncrm.ac.uk/resources/online/SEM2016/

Knutson, M. (2020, January 1). ”Splittringen i svensk politik visar inga tecken på att avta under 2020”. *Sveriges Television.* Retrieved 20-03-25, from: https://www.svt.se/nyheter/inrikes/splittringen-och-polariseringen-visar-inga-tecken-pa-att-avta-snarare-tvartom

Taber, C. S., & Lodge, M. (2006). Motivated skepticism in the evaluation of political beliefs. *American Journal of Political Science, 50*(3), 755-69.

Theorin, N. & Strömbäck, J. (2019). Some Media Matter More Than Others: Investigating Media Effects on Attitudes toward and Perceptions of Immigration in Sweden. *International Migration Review.*

Thorson, K. & Wells, C. (2016) Curated Flows: A Framework for Mapping Media Exposure in the Digital Age. *Communication Theory, 26*(3), 309-328.

Tsfati, Y. (2003). Media skepticism and climate of opinion perception. *International Journal of Public Opinion Research, 15*(1), 65–82.

Tsfati, Y., & Cappella, J. N. (2003). Do people watch what they do not trust? Exploring the association between news media skepticism and exposure. *Communication Research, 30*, 504–529.

Vallone, R. P., L. Ross, and M. R. Lepper. 1985. The hostile media phenomenon: Biased perception and perceptions of media bias in coverage of the Beirut massacre. *Journal of Personality and Social Psychology, 49*(3): 577–585.

Wolin, L. D., & Korgaonkar, P. (2003). Web advertising: Gender differences in beliefs, attitudes and behavior. *Internet Research, 13*(5), 375-385.

Zhao, X. (2009). Media use and global warming perceptions: a snapshot of the reinforcing spirals. *Communication Research, 36*, 698–723.

Appendices

Appendix 1. Gender Differences in Belief Polarization (Percent)

How do you perceive the issue of...			Not so negative perception	Moderately negative perception	Very negative perception	Sum	N	Balance	Gender Gap (men)	Mean (scale 1-6)	Variance (scale 1-6)
Criminality* **	**Wave 1**	Women	23	38	38	100	657	+15		3.91	2.44
		Men	21	31	48	100	750	+27	+12	4.15	2.57
		Total	22	35	43	100	1,407	+21		4.04	2.52
	Wave 2	Women	22	37	41	100	555	+19		3.99	2.42
		Men	20	31	34	100	661	+14	-5	4.17	2.55
		Total	41	49	46	100	1,216	+5		4.09	2.47
	Wave 3	Women	20	34	46	100	480	+26		4.16	2.30
		Men	18	30	52	100	566	+34	+8	4.25	2.41
		Total	19	32	49	100	1,046	+30		4.20	2.36
Immigration* **	**Wave 1**	Women	6	36	58	100	681	+52		4.65	1.47
		Men	4	23	73	100	804	+69	+17	5.03	1.41
		Total	5	29	66	100	1,485	+61		4.86	1.47
	Wave 2	Women	7	39	53	100	554	+46		4.54	1.60
		Men	6	25	69	100	669	+63	+17	4.95	1.42

		Total	7	31	62	100	1,223	+55		4.76	1.53
	Wave 3	Women	4	33	63	100	566	+59		4.80	1.29
		Men	6	25	70	100	662	+64	+5	4.99	1.51
		Total	5	28	67	100	1,228	+62		4.90	1.42
Climate change* **	**Wave 1**	Women	2	22	76	100	964	+74		5.15	0.92
		Men	3	28	69	100	984	+64	-10	5.01	1.15
		Total	2	25	73	100	1,948	+71		5.07	1.04
	Wave 2	Women	1	18	81	100	554	+80		5.26	0.87
		Men	4	25	72	100	669	+68	-12	5.02	1.20
		Total	3	21	76	100	1,223	+74		5.15	1.04
	Wave 3	Women	2	23	74	100	810	+72		5.15	1.11
		Men	5	29	66	100	805	+61	-9	4.85	1.46
		Total	4	26	70	100	1,615	+64		5.01	1.28

Notes: Each specific issue are measured through an index, composed by a set of descriptive statements, as presented aloft. The balance measure is the proportion not so negative perception − proportion very negative perception. For men and women, a low balance value indicates within group-belief polarization, while the total balance value indicates belief polarization on a societal level. A high value indicates critical, yet homogenous, perceptions. The gender gap indicates the distance between men and women with regards to the balance measure, where + indicates that men have a more negative perception of the issue. The variance signifies the degree to which any two randomly selected respondents are expected to differ in their opinions. Thus, variance increases when perceptions becomes more polarized. Kurtosis serves to tap bimodality (if people with different issue perception cluster into separate camps, with locations between the two modal positions sparsely occupied). Kurtosis is positive when a distribution is peaked, and negative when it is flatter than the normal distribution.

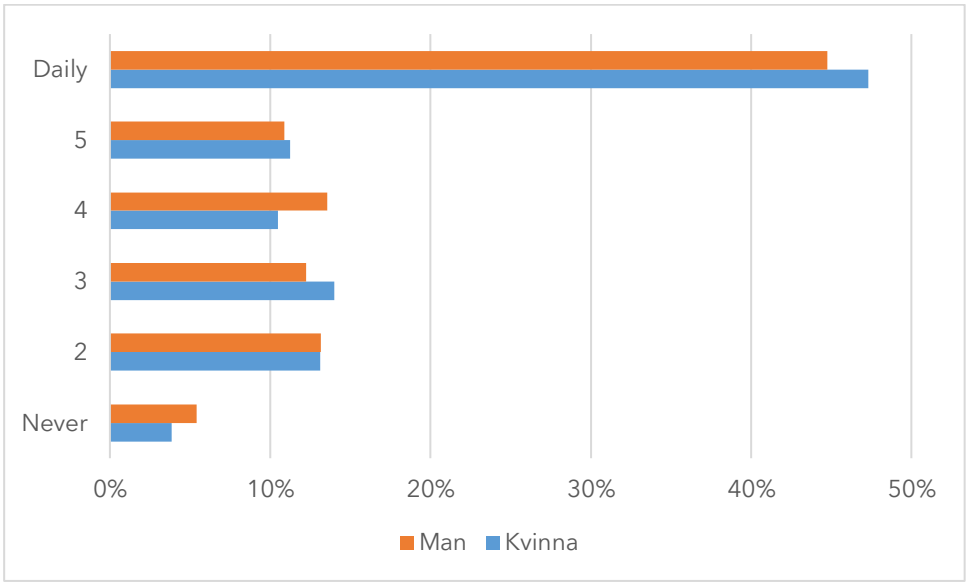
Appendix 2. Media consumption

Table 8. Media consumption mean (standard errors in parentheses).

	Total	**Men**	**Women**
Mainstream Index	2.92 (1.00)	2.98 (1.04)	2.87 (0.95)
Aftonbladet	3.07 (1.88)	3.12 (1.90)	3.02 (1.87)
SVT	4.50 (1.67)	4.46 (1.68)	4.54 (1.65)
Alternative Index	2.82 (1.39)	3.05 (1.45)	2.59 (1.29)
Alt crime	2.75 (1.54)	3.03 (1.61)	2.49 (1.42)
Alt climate	2.66 (1.35)	2.75 (1.36)	2.58 (1.33)
Alt immigration	2.70 (1.50)	2.94 (1.58)	2.47 (1.39)

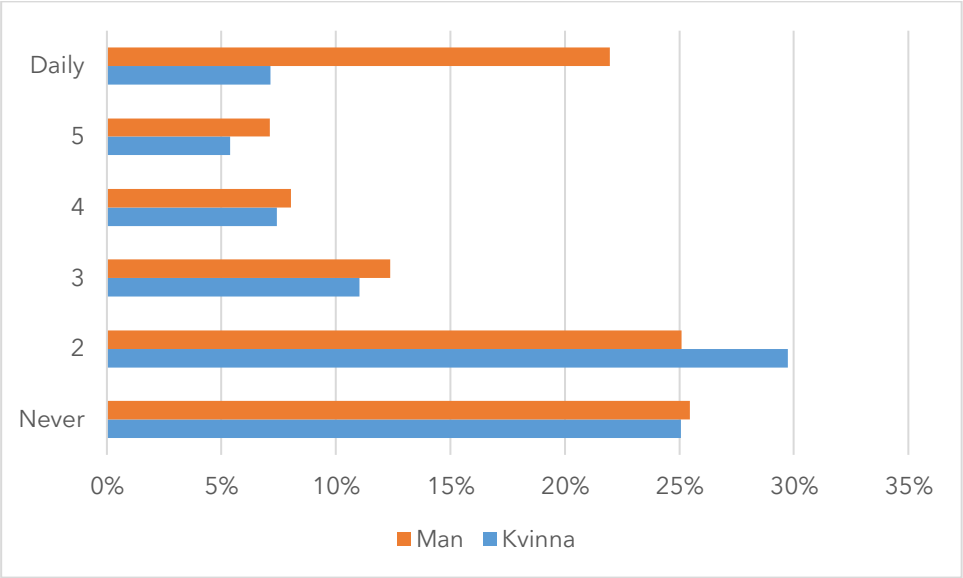
Note: The questions were: Mainstream media: "How often to you use news from the following news outlets (traditional channels or on the Internet): DN/SvD/GP/Aftonbladet/Expressen/News from SVT/News from SR/News from TV4 or local news?" Aftonbladet and SVT were chosen because they have the highest mean out of the media platforms and demonstrate that the gender gap differs depending on platform. N = 2,133. Alternative media: "How often do you use online news websites or social media to follow... (1) News about societal issues not reported by the traditional media, (2) News that provide an alternative view on societal issues than traditional media (3) News that target societal issues the way I see them, as well as (4) News that provide new perspectives on important societal issues" and "How often do you use online news websites or social media to follow news that provide an alternative view than the traditional media on the following topics? (5) News about crime, (6) News about the climate and environment, as well as (7) News about integration and immigration?" N = 2,179.

Figure 13. Gender Differences in News Use: SVT (percent)



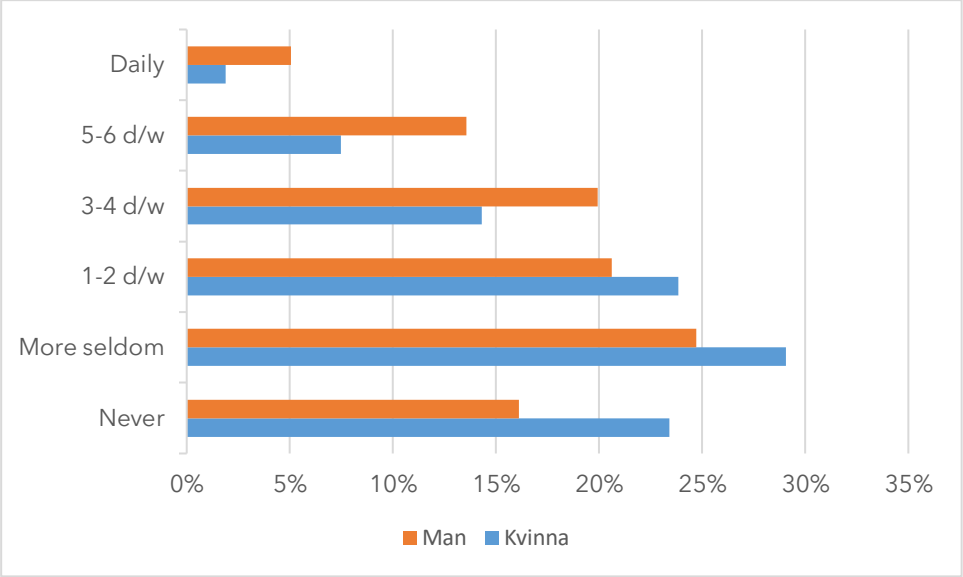
Note: The question was, "How often to you use news from the following news outlets (traditional channels or on the Internet): News from SVT"? The response alternatives ranged from never to daily. M = 4.50, SD = 1.00, N = 2,133.

Figure 14. Gender Differences in News Use: Aftonbladet (percent)



Note: The question was, "How often to you use news from the following news outlets (traditional channels or on the Internet): Aftonbladet"? The response alternatives ranged from never to daily. M = 3.07, SD = 1.88, N = 2,217.

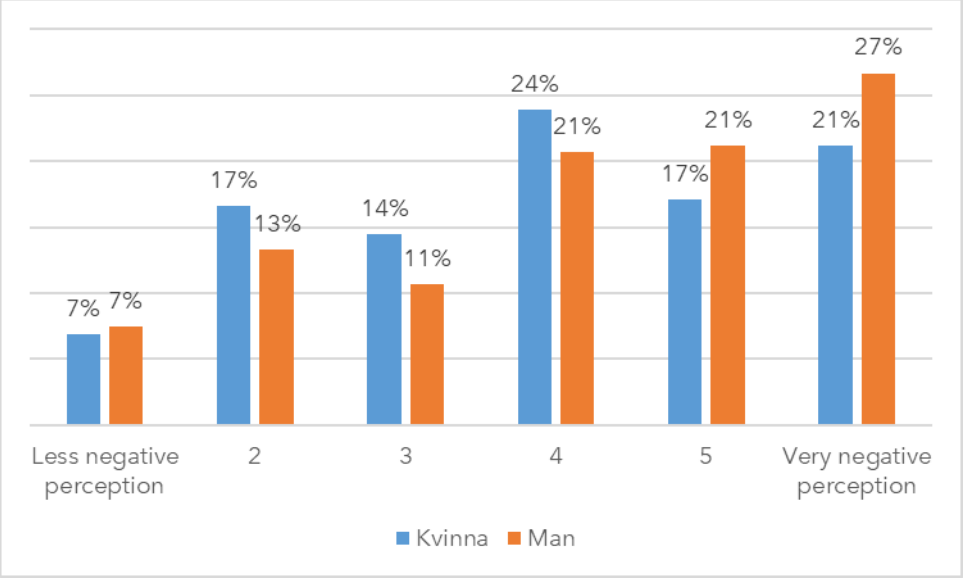
Figure 15. Gender Differences in News Use: Index Alternative Media (percent)



Note: The questions were, "How often do you use online news websites or social media to follow... (1) News about societal issues not reported by the traditional media, (2) News that provide an alternative view on societal issues than traditional media (3) News that target societal issues the way I see them, as well as (4) News that provide new perspectives on important societal issues" and "How often do you use online news websites or social media to follow news that provide an alternative view than the traditional media on the following topics? (5) News about crime, (6) News about the climate and environment, as well as (7) News about integration and immigration?" The response alternatives ranged from never to daily. M = 2.82, SD = 1.39, N = 2,179.

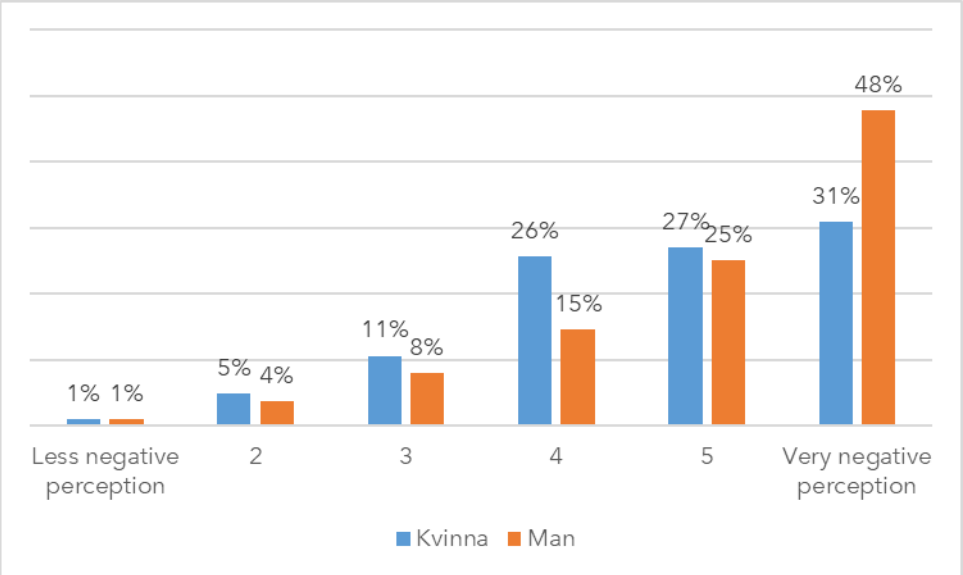
Appendix 3. Gender Differences in Societal Issue Perceptions

Figure 16. Gender Differences in Crime Perceptions: Index Descriptive Statements, Wave 1



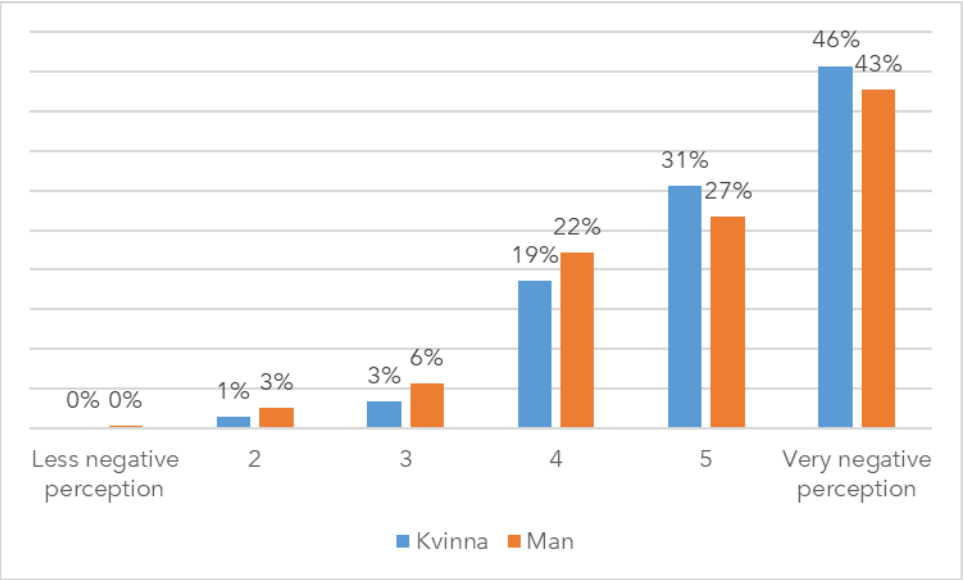
Note: The questions were, "Different claims are sometimes heard in public discourse on crime of violence and criminality. To what extent do you agree with the following statements?" (1) During the past years, crime(s) of violence have increased, (2) Crimes of violence have decreased in Sweden since the 1950s, (3) More violent crimes per inhabitant are committed in Sweden than in our neighbouring countries and (4) The issue of violent crimes is often exaggerated in the public discourse." M = 4.04, SD = 1.59, Variance = 2.52, Skewness = -.35, Kurtosis = 1.98, N = 1,407.

Figure 17. Gender Differences in Immigration Perceptions: Index Descriptive Statements, Wave 1



Notes: The questions were, "Different claims are sometimes heard in public discourse on integration and immigration. To what extent do you agree with the following statements? (1) Problems related to integration of immigrants into Swedish society have increased during the past decade, (2) Integration of immigrants into the Swedish society have improved since the 1960s, (3) Integration of immigrants is more successful in Sweden than our neighbouring countries and (4) The issue of integration of immigrants is often exaggerated in the public discourse." M = 4.86, SD = 1.21, Variance = 1.47, Skewness = -.91, Kurtosis = 3.12, N = 1,485.

Figure 18. Gender Differences in Climate Perceptions: Index Descriptive Statements, Wave 1



Notes: The questions were, "Different claims are sometimes heard in public discourse on climate change. To what extent do you agree with the following statements? (1) Global average temperatures have increased in the past 100 years, (2) Scientists disagree on whether climate change is taking place, (3) Droughts, heavy storms and floods become worse due to climate change, (4) Sweden won't be affected by climate change the next decades and (5) The issue of climate change is often exaggerated in the public discourse." M = 5.09, SD = 1.02, Variance = 1.04, Skewness = -1.01, Kurtosis = 3.64, N = 1,948.

Appendix 4. Path Models

Table 9. Path model of gender, news media use and climate change perception, wave 1. Standardised path coefficients.

		Model 1		Model 2	
		Coef.	**z**	**Coef.**	**z**
Alternative Media					
	Male	.17*** (.02)	8.11	.10*** (.02)	4.70
	Age			-.09*** (.02)	-4.38
	Education			-.10*** (.02)	-4.56
	Ideology			.16*** (.02)	7.63
	Political interest			.22*** (.02)	10.90
Mainstream Media					
	Male	.06** (.02)	2.58	.04 (.02)	1.80
	Age			.34*** (.02)	18.21
	Education			.04 (.02)	1.89
	Ideology			.09*** (.02)	4.58
	Political interest			.15*** (.02)	7.61
Interpersonal communication (IPC)					
	Male	-.06** (.02)	-2.72	-.06** (.02)	-2.64
	Alternative media	.10*** (.02)	4.79	.10*** (.02)	4.42
	Mainstream media	.10*** (.02)	4.66	.11*** (.02)	4.58
	Age			-.06* (.02)	-2.50
	Education			.04 (.02)	1.92
	Ideology			-.14*** (.02)	-6.89
	Political interest			.15*** (.02)	6.71
Climate change perception					
	Male	-.02 (.02)	-1.06	-.00 (.02)	-0.17
	Alternative media	-.22*** (.02)	-10.07	-.21*** (.02)	-9.56
	Mainstream media	-.07** (.02)	-2.96	.00 (.02)	0.02
	IPC	.21*** (.03)	9.40	.15*** (.02)	6.66
	Age			-.17*** (.02)	-7.65
	Education			.11*** (.02)	5.27
	Ideology			-.20*** (.02)	-9.29
	Political interest			.06** (.02)	2.58
χ 2 *(df)*		55.227 (1)		26.630 (2)	
RMSEA		0.154		0.073	
CFI		0.845		0.982	
R2		.03		.27	
N		2,291		2,288	

Note: RMSEA: root mean square error approximation; CFI: comparative fit index. Results from cross-lagged structural equations models (using full information maximum likelihood estimation). Standardised path coefficients with standard errors in parentheses.
**p<.05; **p<.01; ***p<.001.*

Table 10. Path model of gender, news media use and crime perception, wave 1. Standardised path coefficients.

		Model 1		Model 2	
		Coef.	**z**	**Coef.**	**z**
Alternative Media					
	Male	.17*** (.02)	8.14	.10*** (.02)	4.72
	Age			-.09*** (.02)	-4.31
	Education			-.09*** (.02)	-4.47
	Ideology			.16*** (.02)	7.73
	Political interest			.22*** (.02)	10.90
Mainstream Media					
	Male	.06** (.02)	2.63	.04 (.02)	1.83
	Age			.34*** (.02)	18.23
	Education			.04 (.02)	1.83
	Ideology			.09*** (.02)	4.54
	Political interest			.16*** (.02)	7.66
Interpersonal communication (IPC)					
	Male	.03 (.02)	1.61	-.01 (.02)	-0.44
	Alternative media	.30*** (.02)	14.84	.25*** (.02)	12.31
	Mainstream media	.18*** (.02)	9.01	.15*** (.02)	7.05
	Age			.01 (.02)	0.67
	Education			-.10*** (.02)	-5.34
	Ideology			.18*** (.02)	9.33
	Political interest			.10*** (.02)	5.00
Crime perception					
	Male	-.00 (.02)	-0.00	-.05* (.02)	-2.30
	Alternative media	.15*** (.02)	5.86	.13*** (.02)	5.61
	Mainstream media	.01 (.03)	0.39	.00 (.02)	0.03
	IPC	.36*** (.02)	14.88	.26*** (.02)	11.27
	Age			.14*** (.02)	6.29
	Education			-.13*** (.02)	-6.48
	Ideology			.39*** (.02)	19.10
	Political interest			-.13*** (.02)	-5.52
χ 2 *(df)*		56.665 (1)		26.967 (2)	
RMSEA		0.156		0.074	
CFI		0.927		0.988	
R2		.03		.29	
N		2,291		2,288	

Note: RMSEA: root mean square error approximation; CFI: comparative fit index. Results from cross-lagged structural equations models (using full information maximum likelihood estimation). Standardised path coefficients with standard errors in parentheses.
**p<.05; **p<.01; ***p<.001.*

Table 11. Path model of gender, news media use and immigration perception, wave 1. Standardised path coefficients.

		Model 1		Model 2	
		Coef.	**z**	**Coef.**	**z**
Alternative Media					
	Male	.17*** (.02)	8.16	.10*** (.02)	4.73
	Age			-.09*** (.02)	-4.38
	Education			-.09*** (.02)	-4.57
	Ideology			.16*** (.02)	7.68
	Political interest			.23*** (.02)	10.93
Mainstream Media					
	Male	.06** (.02)	2.65	.04 (.02)	1.84
	Age			.34*** (.02)	18.23
	Education			.04 (.02)	1.88
	Ideology			.09*** (.02)	4.56
	Political interest			.16*** (.02)	7.65
Interpersonal communication (IPC)					
	Male	.02 (.02)	0.99	-.02 (.02)	-1.02
	Alternative media	.31*** (.02)	15.39	.25*** (.02)	12.26
	Mainstream media	.13*** (.02)	6.19	.09*** (.02)	4.45
	Age			-.03 (.02)	-1.60
	Education			-.03 (.02)	-1.69
	Ideology			.10*** (.02)	4.90
	Political interest			.24*** (.02)	11.65
Immigration perception					
	Male	.12*** (.02)	4.78	.08*** (.02)	3.54
	Alternative media	.09*** (.03)	3.57	.05* (.02)	2.10
	Mainstream media	.04 (.03)	1.48	-.02 (.02)	-0.85
	IPC	.21*** (.03)	8.07	.19*** (.02)	7.71
	Age			.15*** (.02)	6.09
	Education			-.02 (.02)	-0.96
	Ideology			.39*** (.02)	18.29
	Political interest			-.04 (.03)	-1.43
$\chi 2$ *(df)*		55.198 (1)		26.763 (2)	
RMSEA		0.154		0.074	
CFI		0.901		0.986	
R2		.05		.26	
N		2,291		2,288	

Note: RMSEA: root mean square error approximation; CFI: comparative fit index. Results from cross-lagged structural equations models (using full information maximum likelihood estimation). Standardised path coefficients with standard errors in parentheses.
**p<.05; **p<.01; ***p<.001.*

Appendix 5. Cross-Lagged Models

Table 12. Cross-lagged models of alternative media use and climate change perception (standardised path coefficients)

		Model 1 (women)		**Model 2 (men)**	
		Wave 1-2	Wave 2-3	Wave 1-2	Wave 2-3
Alternative media					
	Climate change perception	-.07* (.02)	-.06* (.03)	-.09** (.03)	-.10*** (.03)
	Age	-.02 (.03)	-.01 (.03)	-.02 (.03)	.03 (.03)
	Education	-.05 (.03)	-.02 (.03)	.01 (.03)	-.02 (.03)
	Ideology	-.04 (.03)	.08** (.03)	.03 (.03)	.05* (.03)
	Political interest	.07* (.03)	.09** (.03)	.05 (.03)	.11*** (.03)
	Alternative media w1	.61*** (.03)	.43***	.63*** (.02)	.28*** (03)
	Alternative media w2	-	.33*** (.02)	-	.43*** (.02)
Climate change perception					
	Alternative media	-.06* (.03)	-.09*** (.03)	-.10*** (.03)	-.15*** (.03)
	Interpersonal communication	-.01 (.03)	.14*** (.03)	-.00 (.02)	.07** (.03)
	Age	-.04 (.03)	-.04 (.03)	-.02 (.03)	-.04 (.02)
	Education	.05 (.03)	.04 (.02)	.09*** (.02)	-.00 (.03)
	Ideology	-.09*** (.03)	-.07*** (.03)	-.12*** (.03)	-.05* (.03)
	Political interest	.01 (.03)	.01 (.03)	.02 (.03)	-.04 (.02)
	Climate change perception w1	.64*** (.03)	.32*** (04)	.65*** (.02)	.32*** (03)
	Climate change perception w2		.42*** (.02)	-	.43*** (.02)
Interpersonal communication					
	Alternative media	.04 (.02)	.03 (.03)	.04 (.03)	.04 (.03)
	Climate change perception	.04 (.03)	.03 (.03)	.09** (.03)	-.03 (.03)
	Age	.03 (.03)	-.05 (.03)	.09** (.03)	.03 (.03)
	Education	.07** (.02)	-.00 (.03)	.02 (.02)	.00 (.03)
	Ideology	-.04 (.02)	-.00 (.03)	-.01 (.03)	-.01 (.03)
	Political interest	.11*** (.03)	-.02 (.03)	.11*** (.03)	.06* (.03)
	Interpersonal communication w1	.64*** (.02)	.31*** (03)	.56*** (.02)	.28*** (03)
	Interpersonal communication w2	-	.47*** (.02)	-	.47*** (.02)
χ 2 *(df)*		89.24		89.24	
RMSEA		0.044		0.044	
CFI		0.991		0.991	
R2		.91		.89	
N		1,171		1,117	

Note: RMSEA: root mean square error approximation; CFI: comparative fit index. Results from cross-lagged structural equations models (using full information maximum likelihood estimation). Standardised path coefficients with standard errors in parentheses.
p<.05; **p<.01;*p<.001.*

Table 13. Cross-lagged models of mainstream media use and climate change perception (standardised path coefficients)

		Model 1 (women)		**Model 2 (men)**	
		Wave 1-2	Wave 2-3	Wave 1-2	Wave 2-3
Mainstream media					
	Climate change perception	-.01 (.02)	-.01 (.02)	-.01 (.03)	.01 (.03)
	Age	.12*** (.03)	.04 (.03)	.11*** (.03)	.11*** (.02)
	Education	.01 (.03)	.00 (.03)	.04 (.03)	-.01 (.03)
	Ideology	.00 (.02)	.04 (.02)	-.03 (.03)	.01 (.03)
	Political interest	.06** (.02)	.05* (.02)	.02 (.03)	.01 (.02)
	Mainstream media w1	.70*** (.02)	.32*** (03)	.71*** (.02)	.33*** (03)
	Mainstream media w2	-	.51*** (.02)	-	.52*** (.02)
Climate change perception					
	Mainstream media	-.02 (.03)	-.04 (.03)	-.02 (.03)	-.02 (.03)
	Interpersonal communication	-.02 (.03)	.13*** (.03)	-.01 (.02)	.06* (.03)
	Age	-.02 (.03)	-.03 (.03)	.00 (.03)	-.02 (.02)
	Education	.05* (.03)	.05 (.02)	.09*** (.02)	.00 (.03)
	Ideology	-.09*** (.03)	-.06** (.03)	-.13*** (.03)	-.07** (.03)
	Political interest	.01 (.03)	.00 (.03)	-.04 (.03)	-.06* (.03)
	Climate change perception w1	.65*** (.03)	.32*** (04)	.67*** (.02)	.33*** (03)
	Climate change perception w2	-	.43*** (.02)	-	.46*** (.02)
Interpersonal communication					
	Mainstream media	.01 (.03)	.00 (.03)	.01 (.03)	.03 (.03)
	Climate change perception	.03 (.03)	.02 (.03)	.09** (.03)	-.04 (.03)
	Age	.02 (.03)	-.05* (.03)	.08** (.03)	.02 (.03)
	Education	.07** (.02)	.00 (.03)	.02 (.02)	-.00 (.03)
	Ideology	-.04 (.02)	-.00 (.03)	.00 (.03)	-.00 (.03)
	Political interest	.12*** (.03)	-.01 (.03)	.11*** (.03)	.07* (.03)
	Interpersonal communication w1	.64*** (.02)	.31*** (03)	.56*** (.02)	.27*** (03)
	Interpersonal communication w2	-	.47*** (.02)	-	.47*** (.02)
χ 2 *(df)*		53.46		53.46	
RMSEA		0.028		0.028	
CFI		0.997		0.997	
R2		.93		.92	
N		1,171		1,117	

Note: RMSEA: root mean square error approximation; CFI: comparative fit index. Results from cross-lagged structural equations models (using full information maximum likelihood estimation). Standardised path coefficients with standard errors in parentheses.
p<.05; **p<.01;*p<.001.*

Table 14. Cross-lagged models of alternative media use and crime perception (standardised path coefficients)

		Model 1 (women)		**Model 2 (men)**	
		Wave 1-2	Wave 2-3	Wave 1-2	Wave 2-3
Alternative media					
	Crime perception	.11** (.04)	.14*** (.04)	.13***(.04)	.02 (.03)
	Age	-.04 (.03)	-.02 (.03)	-.02 (.03)	.04 (.03)
	Education	-.03 (.03)	.01 (.03)	.01 (.03)	-.04 (.03)
	Ideology	-.06* (.03)	.05* (.03)	-.01 (.03)	.06* (.03)
	Political interest	.08*** (.03)	.10*** (.03)	.05* (.03)	.11*** (.03)
	Alternative media w1	.60*** (.02)	.43*** (03)	.62*** (.02)	.30*** (03)
	Alternative media w2	-	.32*** (.02)	-	.44*** (.02)
Crime perception					
	Alternative media	.02 (.03)	.01 (.02)	.02 (.03)	.01 (.02)
	Interpersonal communication	.08** (.03)	-.03 (.02)	.03 (.03)	.00 (.02)
	Age	.11*** (.03)	-.01 (.02)	.06* (.02)	.02 (.02)
	Education	-.10*** (.03)	-.06** (.02)	-.07** (.02)	-.01 (.02)
	Ideology	.04 (.03)	.03 (.02)	.07** (.03)	.08*** (.02)
	Political interest	-.05* (.03)	-.01 (.02)	.03 (.03)	-.01 (.02)
	Crime perception w1	.69*** (.03)	.23*** (04)	.76*** (.02)	.10** (.03)
	Crime perception w2	-	.70*** (.02)	-	.79*** (.02)
Interpersonal communication					
	Alternative media	.07** (.03)	.04 (.03)	.00 (.02)	.03 (.03)
	Crime perception	.14*** (.04)	.13*** (.04)	.16*** (.03)	.16*** (.03)
	Age	.02 (.03)	.02 (.03)	.02 (.03)	.06** (.03)
	Education	-.01 (.03)	-.04 (.03)	-.06** (.02)	-.00 (.03)
	Ideology	.04 (.03)	.02 (.03)	.01 (.03)	.01 (.03)
	Political interest	.04 (.03)	.04 (.03)	.07* (.03)	.08*** (.03)
	Interpersonal communication w1	.58*** (.02)	.34*** (03)	.61*** (.03)	.38*** (.03)
	Interpersonal communication w2	-	.37*** (.02)	-	.32*** (.03)
χ 2 *(df)*		133.73		133.73	
RMSEA		0.057		0.057	
CFI		0.986		0.986	
R2		.93		.93	
N		1,117		1,171	

Note: RMSEA: root mean square error approximation; CFI: comparative fit index. Results from cross-lagged structural equations models (using full information maximum likelihood estimation). Standardised path coefficients with standard errors in parentheses.
**p<.05; **p<.01; ***p<.001.*

Table 15. Cross-lagged models of mainstream media use and crime perception (standardised path coefficients)

		Model 1 (women)		**Model 2 (men)**	
		Wave 1-2	Wave 2-3	Wave 1-2	Wave 2-3
Mainstream media					
	Crime perception	.03 (.03)	-.00 (.02)	.03 (.03)	.01 (.03)
	Age	.11*** (.03)	.05 (.03)	.10*** (.03)	.11*** (.02)
	Education	.01 (.02)	.00 (.02)	.05* (.02)	-.00 (.02)
	Ideology	-.01 (.02)	.04 (.02)	-.04 (.03)	.01 (.03)
	Political interest	.06** (.02)	.05* (.02)	.03 (.02)	.01 (.02)
	Mainstream media w1	.70*** (.02)	.32*** (03)	.70*** (.02)	.33*** (03)
	Mainstream media w2	-	.51*** (.02)	-	.51*** (.02)
Crime perception					
	Mainstream media	.03 (.03)	-.01 (.02)	-.06* (.03)	-.05* (.02)
	Interpersonal communication	.08** (.03)	-.02 (.02)	.04 (.02)	.02 (.02)
	Age	.10*** (.03)	-.01 (.02)	.08** (.03)	.03 (.02)
	Education	-.10*** (.03)	-.07** (.02)	-.06** (.02)	-.00 (.02)
	Ideology	.04 (.03)	.03 (.02)	.07** (.03)	.08*** (.02)
	Political interest	-.05* (.03)	-.01 (.02)	.04 (.03)	.01 (.02)
	Crime perception w1	.69*** (.03)	.23*** (04)	.77*** (.02)	.10*** (03)
	Crime perception w2	-	.70*** (.02)	-	.79*** (.02)
Interpersonal communication					
	Mainstream media	.03 (.03)	.06** (.03)	.05* (.03)	.08*** (.03)
	Crime perception	.15*** (.04)	.13*** (.04)	.15*** (.03)	.17*** (.03)
	Age	-.00 (.03)	.00 (.03)	.00 (.03)	.03 (.03)
	Education	-.01 (.03)	-.04 (.03)	-.07** (.02)	-.01 (.03)
	Ideology	.04 (.03)	.01 (.03)	.01 (.03)	.01 (.03)
	Political interest	.05* (.03)	.04 (.03)	.06* (.03)	.08** (.03)
	Interpersonal communication w1	.59*** (.02)	.34*** (03)	.61*** (.03)	.38*** (03)
	Interpersonal communication w2	-	.38*** (.02)	-	.32*** (.03)
χ 2 *(28)*		95.75		95.75	
RMSEA		0.046		0.046	
CFI		0.992		0.992	
R2		.95		.96	
N		1,171		1,117	

Note: RMSEA: root mean square error approximation; CFI: comparative fit index. Results from cross-lagged structural equations models (using full information maximum likelihood estimation). Standardised path coefficients with standard errors in parentheses.
**p<.05; **p<.01; ***p<.001.*

Table 16. Cross-lagged models of alternative media use and immigration perception (standardised path coefficients)

		Model 1 (women)		**Model 2 (men)**	
		Wave 1-2	Wave 2-3	Wave 1-2	Wave 2-3
Alternative media					
	Immigration perception	.04 (.04)	.08** (.04)	.05 (.03)	.01 (.03)
	Age	-.02 (.03)	.00 (.03)	-.01 (.03)	.04 (.03)
	Education	-.05 (.03)	-.02 (.03)	-.00 (.03)	-.04 (.03)
	Ideology	-.04 (.03)	.06* (.03)	.03 (.03)	.07* (.03)
	Political interest	.07* (.03)	.08** (.03)	-.05 (.03)	.11*** (.03)
	Alternative media w1	.62*** (.02)	.43*** (03)	.64*** (.02)	.30*** (03)
	Alternative media w2	-	.34*** (.02)	-	.44*** (.02)
Immigration perception					
	Alternative media	.01 (.03)	.01 (.02)	-.02 (.03)	-.03 (.03)
	Interpersonal communication	.09** (.03)	.04 (.03)	.04 (.03)	.01 (.02)
	Age	.09** (.03)	.01 (.04)	-.01 (.03)	.01 (.02)
	Education	-.07* (.03)	-.04 (.02)	-.03 (.03)	-.04 (.03)
	Ideology	.16*** (.03)	.04 (.04)	.17*** (.03)	.09** (.03)
	Political interest	-.04 (.03)	.06 (.04)	.01 (.03)	.03 (.02)
	Immigration perception w1	.61*** (.03)	.34*** (05)	.65*** (.03)	.46*** (04)
	Immigration perception w2	-	.46*** (.03)	-	.35*** (.04)
Interpersonal communication					
	Alternative media	.10*** (.03)	.06** (.03)	.06* (.03)	.04 (.03)
	Immigration perception	.04 (.04)	.11*** (.03)	.04 (.03)	.06* (.03)
	Age	.01 (.03)	.06* (.03)	.06* (.03)	.03 (.03)
	Education	.01 (.03)	-.04 (.03)	-.03 (.02)	-.05* (.02)
	Ideology	.02 (.03)	.00 (.03)	.07* (.03)	.05* (.03)
	Political interest	.00 (.03)	.02 (.03)	.05* (.03)	.08** (.03)
	Interpersonal communication w1	.60*** (.02)	.32*** (03)	.62*** (.02)	.32*** (03)
	Interpersonal communication w2	-	.44*** (.02)	-	.44*** (.03)
χ 2 *(df)*		88.22		88.22	
RMSEA		0.043		0.043	
CFI		0.991		0.991	
R2		.90		.93	
N		1,171		1,117	

Note: RMSEA: root mean square error approximation; CFI: comparative fit index. Results from cross-lagged structural equations models (using full information maximum likelihood estimation). Standardised path coefficients with standard errors in parentheses.
p<.05; **p<.01;*p<.001.*

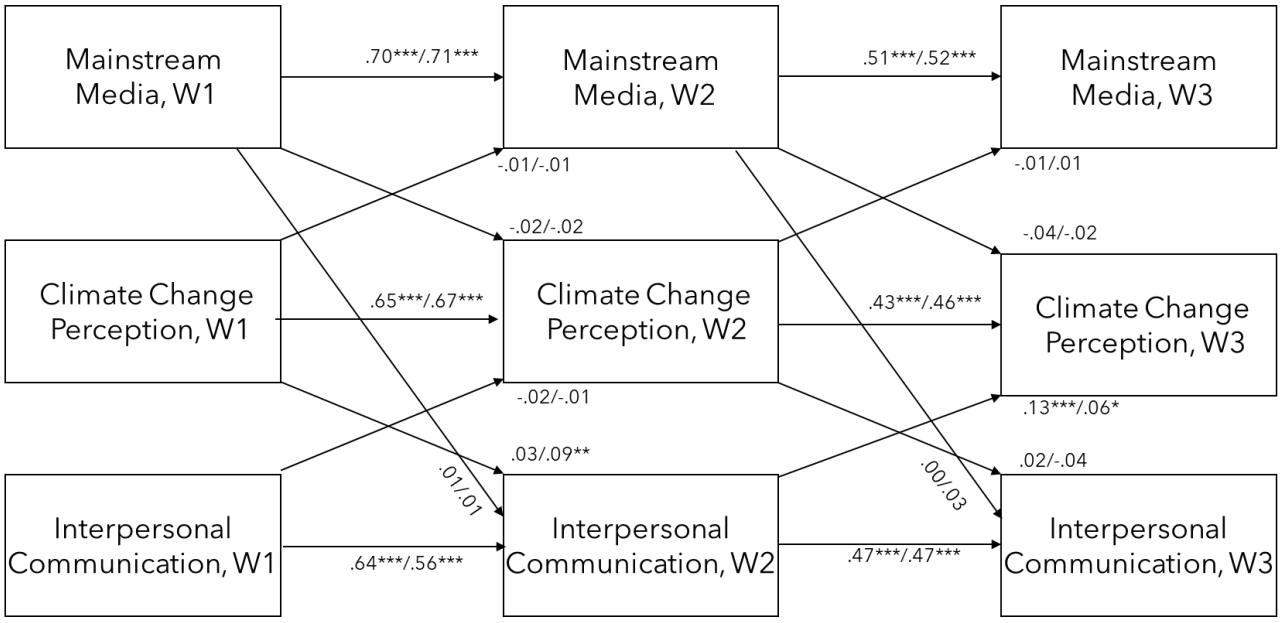
Table 17. Cross-lagged models of mainstream media use and immigration perception (standardised path coefficients)

		Model 1 (women)		**Model 2 (men)**	
		Wave 1-2	Wave 2-3	Wave 1-2	Wave 2-3
Mainstream media					
	Immigration perception	.05 (.03)	-.03 (.03)	.01 (.03)	-.04 (.03)
	Age	.11*** (.03)	.05* (.02)	.11*** (.03)	.11*** (.02)
	Education	.01 (.02)	.00 (.02)	.04 (.03)	-.01 (.02)
	Ideology	-.01 (.02)	.05* (.03)	-.03 (.03)	.03 (.02)
	Political interest	.06** (.02)	.05* (.02)	.02 (.02)	.02 (.02)
	Mainstream media w1	.70*** (.02)	.32*** (03)	.71*** (.02)	.33*** (03)
	Mainstream media w2	-	.51*** (.02)	-	.52*** (.02)
Immigration perception					
	Mainstream media	-.02 (.03)	.03 (.04)	-.01 (.03)	-.00 (.03)
	Interpersonal communication	.10** (.03)	.04 (.03)	.03 (.03)	.01 (.02)
	Age	.09** (.04)	.00 (.04)	-.01 (.03)	.02 (.02)
	Education	-.07* (.03)	-.03 (.02)	-.03 (.03)	-.04 (.03)
	Ideology	.16*** (.03)	.03 (.04)	.17*** (.03)	.08** (.03)
	Political interest	-.03 (.03)	.05 (.04)	.00 (.03)	.03 (.02)
	Immigration perception w1	.61*** (.03)	.34*** (05)	.65*** (.03)	.46*** (04)
	Immigration perception w2	-	.46*** (.05)	-	.35*** (.02)
Interpersonal communication					
	Mainstream media	.04 (.03)	.04 (.03)	.03 (.03)	.05 (.03)
	Immigration perception	.03 (.04)	.10** (.03)	.04 (.03)	.07* (.03)
	Age	-.01 (.03)	.05 (.03)	.04 (.03)	.01 (.03)
	Education	.00 (.03)	-.05 (.03)	-.04 (.02)	-.05** (.02)
	Ideology	.02 (.03)	.00 (.03)	.07** (.03)	.05* (.03)
	Political interest	.02 (.03)	.02** (.03)	.06* (.03)	.08** (.03)
	Interpersonal communication w1	.63*** (.02)	.32*** (03)	.66*** (.02)	.33*** (03)
	Interpersonal communication w2	-	.44*** (.02)	-	.44*** (.02)
χ 2 *(df)*		71.25		71.25	
RMSEA		0.037		0.037	
CFI		0.994		0.994	
R2		.92		.95	
N		1,171		1,117	

Note: RMSEA: root mean square error approximation; CFI: comparative fit index. Results from cross-lagged structural equations models (using full information maximum likelihood estimation). Standardised path coefficients with standard errors in parentheses.
p<.05; **p<.01;*p<.001.*

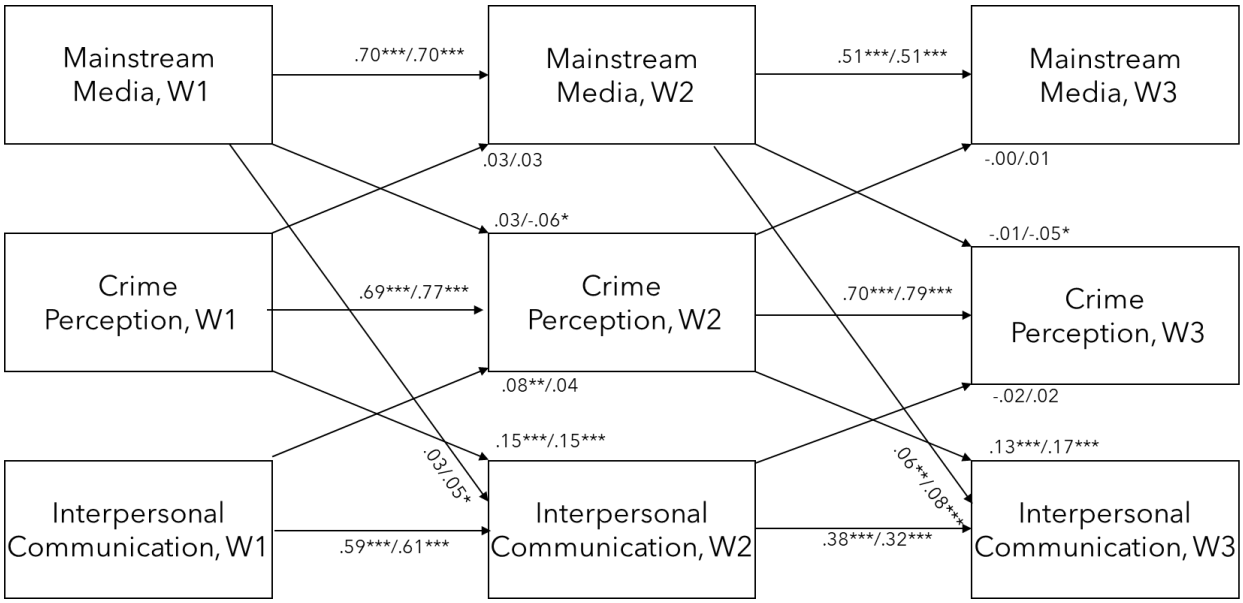
Appendix 6. Cross-Lagged Models – Mainstream media figures

Figure 19. Cross-lagged effects between mainstream media use, climate change perception and interpersonal communication. Group comparison, female/male (standardised path coefficients).



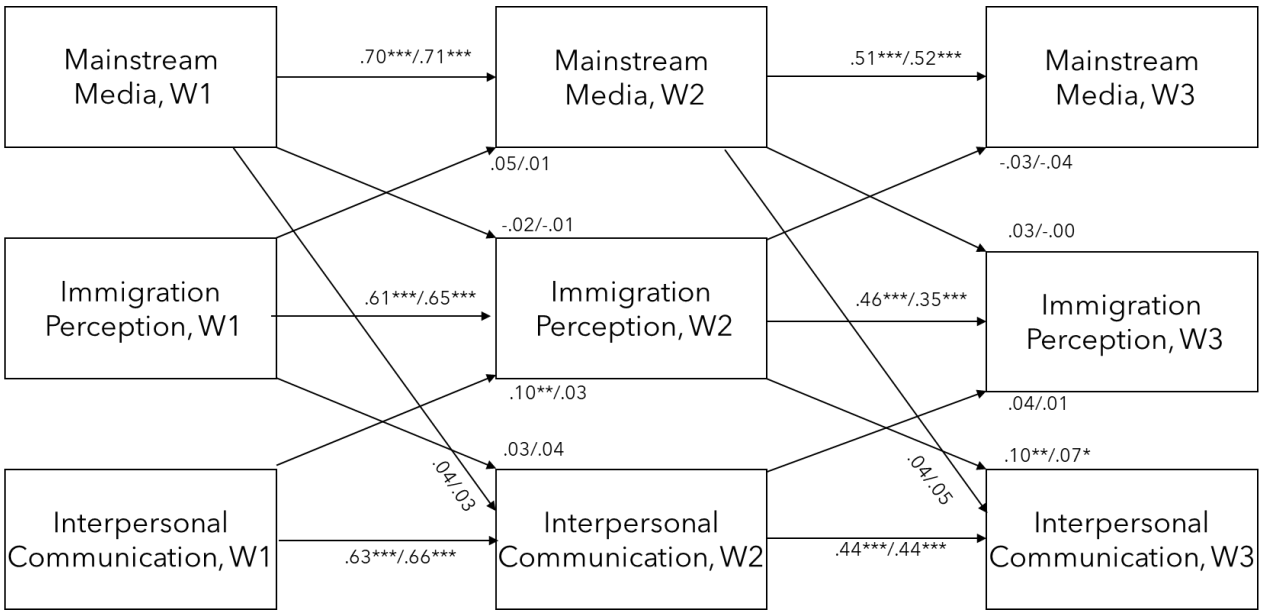
Note: N = 2,288 estimates are standardised path coefficients. All equations control for age, education, ideology and political interest (see full model in Table 10). Autoregressive paths between wave 1 and wave 3 allowed.

Figure 20. Cross-lagged effects between mainstream media use, crime perception and interpersonal communication. Group comparison, female/male (standardised path coefficients).



Note: N = 2,288 estimates are standardised path coefficients. All equations control for age, education, ideology and political interest (see full model in Table 12). Autoregressive paths between wave 1 and wave 3 allowed.

Figure 21. Cross-lagged effects between mainstream media use, immigration perception and interpersonal communication. Group comparison, female/male (standardised path coefficients).



Note: N = 2,288 estimates are standardised path coefficients. All equations control for age, education, ideology and political interest (see full model in Table 14). Autoregressive paths between wave 1 and wave 3 allowed.