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Citation: Karaminis, T., Botha, M., Longley, S., Waldock, K. E., Storey, S., Strachan, K., Ransom, N. & Pellicano, E. (2025). Language Matters in British Newspapers: A Participatory Analysis of the Autism UK Press Corpus. Autism in Adulthood, 7(6), pp. 698-711. doi: 10.1089/aut.2023.0105

This is the accepted version of the paper.

This version of the publication may differ from the final published version. To cite this item please consult the publisher's version.

Permanent repository link: https://openaccess.city.ac.uk/id/eprint/33138/

Link to published version: https://doi.org/10.1089/aut.2023.0105

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Language matters in British newspapers: A participatory analysis of the Autism UK Press Corpus

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Keywords

autism, newspapers, language, stereotypes, stigma, acceptance

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Community brief

Why is this an important issue?

Newspapers frequently portray autistic people in a negative and stereotypical way, emphasizing their challenges and weaknesses instead of their needs and strengths. Also, newspapers frequently use language and terminology that does not respect how autistic people wish to be addressed. Newspaper language can have a negative impact on the mental well-being of autistic people and hinder their acceptance.

What was the purpose of this study?

This study looked at how autistic people perceive the language newspapers use to portray them. It also looked at how autistic people perceive the language of newspapers with different reporting styles (broadsheets vs. tabloids), political orientation (left- vs. right-leaning), and changes over time.

What did the researchers do?

We asked five autistic people to look at 1,000 quotes about autism from British newspapers, published from 2011 to 2020. The autistic experts didn't know which newspaper the quotes were from or when they had been published. They rated each quote based on two things: warmth and competence. Warmth referred to how much autistic people were portrayed as friendly, trustworthy, sincere, tolerant, and kind, while competence referred to how much autistic people were portrayed as intelligent, efficient, ingenious, knowledgeable, and powerful. The coders also indicated how confident they felt about these judgments.

What were the results of the study?

The autistic experts rated most quotes as having low warmth and low competence. Quotes referring to “autism” in a general way, without referencing autistic people, tended to be rated low on warmth and competence. Furthermore, quotes using identity-first language, e.g., "autistic person", tended to be rated higher in warmth and competence than those using

person-first language, e.g., "person with autism". Quotes from broadsheets were seen as conveying similar warmth and slightly higher competence than quotes from tabloids. There was no difference between left and right-leaning papers and no clear pattern of change over time.

What do these findings add to what was already known?

This study shows that, according to autistic raters, the recent British press portrays autistic people in a negative way. It also highlights the important role of terminology that the press uses to refer to autistic people. The findings provide subtle evidence that broadsheets offer a slightly more positive representation of autistic people than tabloids. But they challenge the idea that portrayals of autistic people in newspapers have become more positive over time.

What are potential weaknesses in the study?

One potential weakness is that the individual experts sometimes differed in how they felt about individual quotes. These differences, as well as potential differences between autistic and non-autistic people, should be examined in future research.

How will these findings help autistic adults now or in the future?

The findings suggest that newspapers should take steps towards representing autistic people in a more positive way, to shift attitudes toward autistic people in society. They also highlight the importance of language and terminology, and that autistic people should be involved in guiding newspapers towards promoting more inclusive views.

Abstract

Background: Language around autism plays a crucial role in shaping public attitudes towards autistic people. The use of identity-first vs. person-first language, and impersonal references to autism can affect how autistic people are perceived. These factors should impact the representation of autistic people in newspapers, where negative and stereotypical representations are often perpetuated. **Method:** We asked five autistic people to judge the sentiment towards autism and autistic people in 1,000 quotes from British newspapers (2011 – 2020). The coders, who did not know the newspaper title and time of publication, made their judgments based on two dimensions, warmth and competence, from the Stereotype Content Model (SCM). We examined the overall judgments of warmth and competence and considered variations in language context and terminology, such as the use of impersonal references to autism, or identity-first and person-first language. We also examined potential differences between broadsheets and tabloids, left- and right-leaning newspapers, and changes over time. **Results:** The majority of quotes from British newspapers fell under a low warmth and low competence area within SCM. Furthermore, impersonal references to autism tended to be rated lower in warmth and competence than references linking autism to an individual, while identity-first language was judged higher in warmth and competence than person-first language. Quotes from broadsheets were assigned similar warmth and slightly higher competence than quotes from tabloids. However, left-leaning and right-leaning papers did not differ regarding warmth and competence and there were inconsistent changes over time. **Conclusion:** Our study confirms that the portrayal of autistic people in British newspapers tends to be negative. According to autistic raters, associating autism with a person and using identity-first language is linked to more positive representations. While we found subtle variations in sentiment related to reporting style, our study shows little progress over time towards more positive portrayals.

Introduction

Language and culture play a pivotal role in shaping human thought. One of the main mechanisms through which this relationship operates is framing.[1-4] Broadly speaking, framing refers to the process by which information is presented or communicated through specific linguistic and cultural means, and how this may influence the way we think about or comprehend a particular topic, issue, situation, or event. Framing is particularly important for the public understanding and conceptualisation of mental health and disability, including autism. The construct of autism is, in part, shaped and constituted by shared social meanings. This is an ongoing and interactive process, in which the common understanding and language around autism within society are reflected in its cultural dynamics.[5-6] Furthermore, the language that society uses to understand autistic people both shapes and is shaped by the way autistic people are perceived and constructed.

Language around autism is especially important for the neurodiversity movement, which advocates for the acceptance of autistic people and their representation in all aspects of life.[7-10] Without ignoring that autism can also be a disability with biological and genetic etiology,[11-14] the neurodiversity movement posits that disability arises from inadequate accommodations in physical, cognitive and social environments, including attitudes and stereotypes that are implied and perpetuated through language.[15]

The debate surrounding the appropriate terminology for referring to autism and autistic people often centers on the choice between identity-first ("autistic person") and person-first ("person with autism") language.[16-19] Studies have shown that autistic people generally prefer identity-first language, while family members and professionals tend to favor person-first language.[20-24] Cultural variations may also exist, with some studies indicating preferences towards person-first language in Dutch-speaking populations,[25] but identity-first language in French-speaking ones.[26]

Concerns have been raised about the potential negative consequences of person-first language, which may reinforce the perception of autism as something separate from the person themselves.[16-17, 27] or as something undesirable one could combat without considering the person who attached to it.[30] Identity-first language, on the other hand, is seen as empowering and allows autistic people to reclaim labels associated with stigma.[21, 31-32] Moreover, the adoption of

person-first language was initially intended to promote a more "humanized" view of autistic people,[18] however, a preliminary study by Gomes[33] suggested it may have limited effectiveness in achieving this goal.

Another important issue related to the impact of language on perceptions towards autism relates to making references to autism rather than autistic people. McGuire[30] and Farahar[34] highlight the potentially problematic role of this impersonalisation of autism into an object outside of a person. This potentially provides a language-mediated distance between the person and the condition and allows people to discuss autism as if the person is not there, or as if it does not have consequences for autistic people.

Impersonal references to autism are prevalent in research. A recent mixed-method study on researchers' attitudes towards autistic people and autism[35] found that researchers who used these references described autism as a disorder, disease or condition, and tended to locate suffering and impairment as an inherent characteristic of autistic people, rather than seeing autism as a difference, disability or as a minority neurotype and recognising the role of society in the emergence of disability. Furthermore, the use of "amorphous" references to autism offered some researchers the linguistic means to allude to research goals such as the prevention and eradication of "autism", which would be unpalatable for the autism community and anyone embracing the neurodiversity movement, and thus normalize violence for autistic people. Thus, impersonal references to autism are suggested to be more dehumanizing than both identity-first and person-first language, which recognise autism as a distinctly human phenomenon (albeit to varying degrees given the semantic separation present in person-first language; as discussed by Botha).[16]

The way researchers talk about autism and the ideas they express often transfer to public discourses of autism, often through sources like the press.[36] The press is a powerful societal institution, which both reflects and shapes public attitudes and beliefs towards them through the setting of an agenda of "newsworthy" issues,[37] as well as the frames used to refer to people or social groups.[2, 38-40] A large body of research has highlighted the biased and often inaccurate portrayal of autism in newspapers, which perpetuates ableist and stereotypical views towards autistic people.[41-47] One of the studies, Karaminis et al.,[46] investigated the portrayal of autism and autistic people in UK newspapers from 2011 to 2020, analyzing all the

documents that made references to autism and autistic people in 10 national newspapers during this period (The Autism UK Press Corpus, k = 23,742 documents). Newspapers frequently emphasized the challenges and difficulties associated with autism, employed negative language, and focused predominantly on boys.[46] These representations gradually evolved over time towards including more diverse age and gender groups, and difference-based descriptions of autistic people, although this shift was limited to broadsheets and left-leaning newspapers.[46]

The current study

In this study, we sought to extend the work of Karaminis et al.[46] in three important ways. First, we examined attitudes towards autism and autistic people (Research Question 1) using an alternative empirical methodology and stronger models of community involvement. Specifically, we asked a group of autistic adults to judge the sentiments conveyed in a sample of quotes from the Autism UK Press corpus based on the Stereotype Content Model (SCM),[48-49] a prominent theoretical framework for the study of stereotypes towards social groups. The SCM suggests that there are two key dimensions that determine perceptions and attitudes towards both individuals and groups, namely warmth and competence.[48] Warmth can be defined as the degree to which a person or a group is perceived as friendly, trustworthy, sincere, tolerant, and kind. Competence can be defined as the degree to which a person or a group is seen as intelligent, efficient, ingenious, knowledgeable, and powerful.

Furthermore, the SCM proposes that the way a person or a social group is perceived on these two dimensions determines emotional reactions towards them and, eventually, maps onto interpersonal and intergroup behaviors and dynamics ("Behaviors from intergroup affect and stereotypes": BIAS map). Given that the SCM has been extensively validated and has been shown to reliably predict stereotypes toward various groups in diverse cultural contexts,[50] we hypothesized that the two-dimensional model would offer new insights into the sentiments and perceptions towards autism in British newspapers, relevant to promoting the acceptance of autism and autistic people.

Second, we investigated the role of language and terminology by examining how sentiments vary when making impersonal references to autism or using identity-first versus person-first language (Research Question 2). Finally, we examined whether sentiment ratings

varied according to reporting style (broadsheet vs. tabloids), political orientation (left- vs. right-leaning newspapers) and time (from 2011 to 2020) (Research Questions 3-5).

Overall, we hypothesized that our approach would capture the tendency of newspapers to portray autistic people negatively, and that the SCM would be sensitive to differences related to language and framing highlighted in earlier research. More specifically, we predicted that the majority of quotes would be assigned low warmth and low competence values, while quotes using identity-first language would be attributed higher warmth and competence values than those using person-first language or making impersonal references to autism. Furthermore, drawing on the findings of Karaminis et al.,[26] quotes from broadsheets, left-leaning papers and quotes with a later publication time would be given higher warmth and competence values than quotes from tabloids, right-leaning papers, and with an earlier publication time.

Methods

Coders

Five members of our research team (hereafter referred to as "autistic experts"), who were autistic adults (mean age = 27.8, SD = 10.7, range = 23 - 31; 2 female, 1 male, 1 non-binary, 1 prefers not to say) carried out the task of evaluating the quotes of the survey based on the SCM.

Materials

Sample of quotes

We created a sample of 1,000 quotes to be evaluated for the sentiment conveyed towards autism and autistic people. These quotes were extracted from the Autism UK Press Corpus,[46] using a bespoke programme written in Python. Each quote in the sample was selected to contain either one instance of the term "autism" or "autistic". Of the 1,000 quotes, 285 (28%) used the term "autism" to refer to the condition without using person-first language to describe an autistic individual. For example: "I reali[z]ed that rather than trying to dilute my autism, I needed to find my natural habitat – that autism can be a gift, if you're in the right environment" *[Telegraph, 2019]*. An additional 356 quotes (36%) used the term "autism" with expressions

utilizing person-first language to describe an autistic person. For example, “Tesco has launched a "quiet hour" scheme to make the shopping experience more comfortable for customers with autism” *[Independent, 2017].* Finally, 359 quotes (36%) used the term “autistic” with identity-first language to describe an autistic individual. For example, “He plays a grief-stricken man who strikes up an unusual relationship with Sigourney Weaver, high-functioning autistic woman in Canada” *[Mirror, 2016].* Some other characteristics of the quotes are summarised in Supplementary Table 1.

Survey

We designed an online Qualtrics survey to present the 1,000 quotes to autistic experts. The quotes were shown one-at-a-time using the interface depicted in Supplementary Figure 1. Importantly, each quote was presented on-screen without any information about the type of newspaper or date of publication, while coders also had no information on the distribution of quotes across different newspapers. This was done to minimize the impact of potential biases towards individual newspapers and ensure that the judgments were based primarily on the language and content of the quotes.

The survey instructed autistic experts to evaluate the sentiment expressed in each quote on two dimensions: warmth and competence. It provided definitions of warmth as “the degree to which a person is portrayed as friendly, trustworthy, sincere, tolerant, and kind”, and competence as “the degree to which the person is portrayed as intelligent, efficient, ingenious, knowledgeable, and powerful”.

The autistic experts were asked to judge the warmth and competence of the individual quote, as well as their confidence in these judgments. Specifically, they responded to four questions:

1. What is the warmth value?
2. How sure are you about your judgment regarding warmth?
3. What is the competence value?
4. How sure are you about your judgment regarding competence?

For Question 1, autistic experts could choose between five options referring to warmth per se (Very cold, Somewhat cold, Neutral, Somewhat warm, Very warm) and one more option to indicate that they found a given quote uncodable ("I think this is uncodable"). Similarly, for

Question 3, experts could select between five options referring to competence per se (Extremely incompetent, Somewhat incompetent, Neutral, Somewhat competent, Extremely competent) and another option suggesting that a given quote was uncodable. For Questions 2 and 4, autistic experts could indicate their confidence on an 11-point scale using a slider (0: not sure at all... 5: neither unsure nor sure... 10: absolutely sure).

The Qualtrics survey was designed such that it was mandatory to provide responses to all four questions for a given quote to proceed to the next quote. However, our autistic experts could step back to amend their previous responses. The survey autosaved progress and enabled autistic experts to pause their annotation work at any time and continue their work from the last quote they had annotated.

General procedure

The study received ethical approval from the Science Research Ethics Committee of Edge Hill University (SREC: ETH2021-0008) and was conducted in accordance with its ethical procedures. The research and coding team gathered at the beginning of the coding process to discuss the coding requirements and establish clear research procedures for the study. The training for the coding task consisted of the following steps. First, the team discussed the study's rationale and shared experiences and perspectives on examples of negative and positive autism coverage in the press. The specific research questions of the study were not disclosed to the coders at this stage to minimize the impact of prior beliefs related to terminology or the quality of representations in different newspapers on their codings.

Next, the research and coding team familiarized themselves with the SCM and its dimensions, warmth, and competence. The team also went over the Qualtrics survey environment, reviewing the provided instructions and discussing the option "I think this is uncodable" and the questions related to their confidence in judging warmth and competence. Additionally, the team examined example quotes and discussed how different attitudes were conveyed. After the meeting, the coding team members received the Qualtrics survey link to complete the coding task at their convenience. The coders were encouraged to take a break from the coding process, given that some of the quotes could be unpleasant to read and potentially cause feelings of distress, and to contact lead researchers for support with such

experiences. The team convened again at the end of the coding process. The coders did not report any significant issues with the coding task during this review meeting.

Upon activating the survey link for the first time, autistic experts received written instructions reiterating that they would be presented with 1,000 quotes that reference autism, some of which may focus directly on autism or autistic people, while others may refer to autism and autistic people indirectly or incidentally. Autistic experts were directed to assess the sentiment conveyed in every quotate along two dimensions: warmth and competence. Definitions of warmth were given, describing it as the extent to which a person is depicted as friendly, trustworthy, sincere, tolerant, and kind. Similarly, competence was defined as the degree to which the person is presented as intelligent, efficient, ingenious, knowledgeable, and powerful.

Community involvement

The study was conducted within a participatory research framework.[51-53] To ensure clarity and understanding among all members involved in the project, the research and coding team convened at the start of the coding process to discuss the coding requirements and ensure that the study's research procedures were well-defined for everyone involved in the project. All autistic experts received reimbursement, in line with NIHR (National Institute for Health and Care Research) guidelines, for their annotation work. The autistic experts were given the option to choose between different models of participation, including solely being involved in the annotation work or continuing to contribute to the data analysis and manuscript writing process. At the end of coding, all five autistic experts opted to contribute to the data analysis and write-up, and are authors on the paper.

Measurements

We computed averages for the warmth and competence values, excluding the "I think this is uncodable" option. These averages were normalized to range from 0.0 to 1.0, with higher scores indicating more warmth and competence. We also computed normalized averages for confidence ratings in warmth and competence, ranging from 0 to 1, where higher scores indicated greater confidence. The judgments of warmth and competence were further analyzed

to measure the occurrence of "I think this is uncodable" responses for each quote. This measure, referred to as codability, ranged from 0 to 5 and was computed separately for warmth and competence. To assess agreement between autistic experts' judgments of warmth and competence, we used the Krippendorff alpha measure of inter-rater reliability, which ranges from -1 (inverse agreement) to 1 (perfect agreement). We calculated Krippendorff alpha for all five autistic experts and all possible pairwise combinations of autistic experts. Based on their average warmth and competence values, individual quotes were assigned to one of the four SCM areas ("quadrants"), see Figure 1.

Data analysis

Addressing research questions

To examine the overall sentiment towards autism and autistic people (Research Question 1), we examined whether a larger number of quotes were coded as conveying a negative sentiment, represented by the low warmth and low competence area, than a positive sentiment, represented by the high warmth and high competence area. These comparisons were made using the Bayesian Information Criterion (BIC; see p. 8 in Wilson).[54] A negative BIC was taken to suggest that there is no reliable evidence for a difference; a positive BIC < 2.00 was taken to indicate "anecdotal" evidence for a reliable difference; a BIC ⩾ 2.00 was taken to show "positive evidence", a BIC ⩾ 6.00 suggested "strong evidence" and any BIC ⩾ 10.00 implied "very strong" evidence. Furthermore, we compared the averages for warmth and competence across all quotes in the sample to the values for neutral sentiments (warmth = competence = 0.5). As our data were not normally distributed, these comparisons were made using a Wilcoxon One Sample Signed-Rank test, the non-parametric equivalent of the one sample t-test.

We addressed the role of language and terminology (Research Question 2) in two ways. First, we compared the proportion of quotes in the low warmth and low competence area and the the high warmth and high competence area of the SCM, as well as the averages for warmth and competence, in quotes that referred to autism impersonally (i.e., as a condition, without making reference to autistic people) and quotes that referred to autistic people (using either person-first or identity-first language). Second, we made similar comparisons for these measures in quotes that used identity-first and person-first language. Similarly, to address potential differences related to reporting style, political orientation, and time period (Research

Questions 3-5), we compared the proportion of quotes in the low warmth and low competence area and the high warmth and high competence area, as well as the average values for the warmth and competence judgments in appropriately selected subsets of quotes (Broadsheets vs. Tabloids, Left- vs. Right-leaning, and Early vs. Middle vs. Recent). For Research Questions 2-5, quantitative comparisons between proportions (e.g., the proportion of quotes falling in the low warmth and low competence area in quotes with identity-first and person-first language) were made using the Bayesian Information Criterion (BIC; see p. 8 in Wilson).[54] For the continuous measures (i.e. average warmth and competence values), comparisons were made using Mann-Whitney U-tests and Kruskal-Wallis ANOVA, given the lack of normality in the data.

Preliminary and complementary analyses

We conducted a preliminary data analysis, in which we examined potential associations between key measurements, and assessed between-coder variability and the agreement between individual coders in the judgments of warmth and competence. Furthermore, we carried out complementary analyses aiming to establish that the findings reported in this paper were not confounded by autistic experts' confidence in their judgments, as well as the prevalence of the "I think this is uncodable" responses. Additional information on the preliminary and complementary analyses can be found on the OSF platform (https://osf.io/25bt7/?view_only=bb813aacf28242bdb83fe24e63d93cd7, in the Supplementary Materials folder).

Results

Research Question 1: Widespread prevalence of stigmatizing attitudes

Figure 1 shows the average warmth values for individual quotes plotted against average competence values (see https://autismsentimentcoding.herokuapp.com/ for an interactive version). Example quotes from the different SCM quadrants are as follows. The quote " ... an adult with severe autism, who spits, bites and eats cigarette butts and soil, and whose parents are too old to look after her, so her sister [...], who herself has depression and an eating disorder, has to" *[Telegraph, 2020]* was given very low warmth and competence values by all five autistic

experts (warmth = 0.05; competence = 0.05; confidence = 0.72). As a result, this quote is positioned within the low warmth and low competence SCM area. By contrast, the quote "Much of the world's earliest great art is likely to have been created by gifted humans on the autism spectrum, new research by British scientists suggests" *[Independent, 2018],* was given high warmth and competence scores (0.75 and 0.86 correspondingly, across at least four autistic experts with confidence = 0.77). Therefore, this quote falls within the high warmth and high competence SCM area. Furthermore, the quote "Up to 400 computer-save children, many with autism, are being targeted by police under a Prevet-style programme over fears they could otherwise become dangerous hackers and cybercriminals" *[Telegraph, 2019]* was given low warmth but high competence scores (0.10 and 0.65 correspondingly, confidence = 0.67) and is positioned to the corresponding area of SCM. Finally, the quote "A deaf and autistic boy who lost touch with his friends received more than 700 birthday cards from strangers around the world" *[Mirror, 2020]* falls in the high warmth low competence area of the SCM (warmth = 0.75, competence = 0.31, confidence = 0.75, coders ≥ 3).

Overall, the great majority of the quotes (k = 632, 63.2%) fall within the low warmth and low competence SCM area, indicating a strong prevalence of stigmatizing views towards autism and autistic people. Additionally, for 51 quotes (5,1%), the average warmth and competence values fall within the low warmth and high competence area, while for 170 quotes (17%), the average warmth and competence values fell within the high warmth and low competence area. Only 147 quotes (14.7%) have average warmth and competence values within the high warmth and high competence SCM area, corresponding to more positive attitudes towards autism and autistic people.

Table 1 presents results on the quantitative comparisons between the proportion of quotes across the SCM quadrants, while Table 2 presents statistical comparisons focusing on the average warmth or average competence values. With regards to Reserach Question 1, the quantitative comparisons suggested very strong evidence that autistic experts perceived more quotes as conveying a low warmth and low competence sentiment than a high warmth and high competence sentiment (Table 1). Furthermore, the average warmth and competence values were significantly lower than the point of neutrality (Table 2).

Research Question 2: Language and terminology matters

Impersonal references vs references to individuals

Figure 2 illustrates the distribution of quotes across the four SCM areas based on the three quote types that differ in their use of language and terminology. Impersonal references to autism conveyed more negative sentiments than references to autistic people with either identity-first or person-first language. More specifically, the proportion of quotes falling in the low warmth and low competence SCM area was higher for impersonal references to autism (k = 218, 76.49%) than for references to autistic people with either identity-first or person-first language (k = 414, 58.48%). The statistical analysis (see Table 1) suggested anecdotal evidence for this difference. Moreover, quotes using impersonal references to autism had a lower proportion in the high warmth and high competence SCM area (k = 27, 9.47%) compared to quotes referring to autistic people (k = 120, 16.55%) and the statistical evidence for this effect was relatively strong (see Table 1). Consistent with these results, quotes including impersonal references to autism had lower average warmth and competence values than quotes referring to individuals (Table 2).

Identity-first vs person-first language

Quotes using identity-first language were associated with more positive sentiments than those using person-first language. The percentage of quotes falling in the low warmth and low competence SCM area was lower for identity-first (k = 175, 48.75%) than for person-first (k = 239, 67.13%) quotes. Additionally, quotes using identity-first language had a higher percentage in the high warmth and high competence SCM area (k = 85, 23.68%) than those using person-first language (k = 35, 9.83%). These differences were corroborated statistically with quantitative comparisons of proportions (see Table 1). Furthermore, quantitative comparisons suggested that quotes using identity-first language had higher average warmth values and higher competence values than quotes using person-first language (Table 2).

Research Questions 3-5: No influence of reporting style, political orientation and publication time

With regard to research questions 3-5, the analysis revealed minimal and inconsistent differences between different categories of quotes (see Tables 1 and 2). Quotes from broadsheets received similar warmth scores and slightly higher competence scores compared to tabloid quotes. However, no differences were observed between left-leaning and right-leaning papers regarding warmth and competence, while changes over time were inconsistent. Further details on these results can be found in the Supplementary Materials (Section 5).

Discussion

Summary of our findings

Here, we investigated the attitudes towards autism and autistic people in the British press between 2011 and 2020 using an annotation method and a participatory approach. Overall, we found that the sentiment towards autism and autistic people portrayed in the British press was overwhelmingly negative, as evidenced by most quotes falling under the low warmth and low competence area of the SCM model. This finding aligns with the findings of the corpus-based study of Karaminis et al.,[46] and other studies on the representation of autism in the press.[41-45, 47] A common finding in these studies is that newspapers focus on adversities associated with autism and adopt an ableist perspective, and tend to use negative and stereotypical language to refer to autism and autistic people.

In our study, the extent to which individual quotes focused on adversities or featured negative, ableist and stereotypical language cues contributed to the warmth and competence that were assigned to quotes and their membership in the four SCM areas. According to the BIAS ("Behaviors from intergroup affect and stereotypes") map within the SCM framework,[48-50] groups associated with low warmth and low competence, which, amongst others, include unhoused people and those with addiction, may be described by laypersons as "inept", "unfamiliar", "strange", and "not uniquely human or quite typically human".[55-56] These groups

often experience extreme prejudice including "unabashed disliking and disrespect" from others and eliciting negative emotions that can be observed in neural responses.[55] It remains to be demonstrated whether the low warmth and competence values attributed by our autistic experts to the quotes from British newspapers align with the sentiments of their readership or the broader British society towards autism and autistic people. Nevertheless, our results are consistent with a growing body of research that highlights the prevalence of dehumanizing and objectifying views towards autistic people in society more broadly[57] and in research.[35]

Our data indicated that the attribution of negative connotations to autistic people was stronger when newspapers made impersonal references to autism, in comparison to when they referred to autistic people through identity-first or person-first language. This finding aligns with results from a study by Botha and Cage,[35] who used content analysis of open-ended responses provided by autism researchers regarding autism. The authors of that study suggested that abstracting autism from the autistic person, as implied in vague references to autism, supported certain research-based narratives. These narratives often portrayed autism as a disease, disorder, or condition characterized by significant heterogeneity and necessitating intervention due to the suffering and disruptions it purportedly causes to the lives of autistic individuals and those around them. Additionally, these narratives occasionally alluded to the prevention and eradication of autism. It is likely that similar linguistic mechanisms operate in narratives concerning autism and the representation of autistic people in the press. This is because newspapers often cover scientific findings and discoveries and interview researchers, and anecdotal reports suggest that research may contribute to or reinforce stereotypes about autistic people in public discourse.[27] Future studies could conduct a more detailed analysis of the content of impersonal references to autism in newspaper texts.

Furthermore, our data provided compelling evidence that quotes employing identity-first language were assigned a more positive sentiment than those using person-first language. This finding may be attributed to the varying degrees of semantic separation in person-first and identity-first language. Similar to impersonal references to autism, the presence of linguistic distance between the autistic person and autism in person-first language could lend support to narratives that conceptualize autism as a disorder that is external to the individual and needs to be combatted.[16,30] Such narratives would likely be assigned lower

warmth and competence values by our autistic experts. However, it is also possible that the difference in perceived sentiment between quotes using identity-first and person-first language reflects the terminology preferences of our autistic experts. Notably, a preliminary study by Gomes[33] found that individuals from the general population exhibited comparable evaluations of inclusivity of passages, regardless of whether they were presented in identity-first or person-first language. Future research could explicitly examine whether the language preferences of autistic people influence their judgments of the sentiment conveyed in quotes.

Regarding our third aim, we found limited evidence suggesting differences in attitudes expressed in quotes from tabloids versus broadsheets, and no evidence suggesting differences between left-leaning and right-leaning newspapers. However, these differences were not statistically significant. Nonetheless, we observed some subtle variations in the distribution of quotes across different SCM areas within different sections of the press. These findings generally align with the results of Karaminis et al.'s[46] corpus-based analysis. However, our findings challenge the notion that British newspapers have been progressing towards more positive representations of autism over time.[46-47]

Implications for the improvement of attitudes toward autistic people

The finding that the overwhelmingly negative portrayals of autism have remained largely unchanged over the past decade has significant implications for public perceptions and attitudes toward autistic people. This finding is consistent with recent research indicating that while younger generations tend to possess greater knowledge and have more positive attitudes towards autistic people,[58] negative attitudes and stigma surrounding autism continue to prevail.[59-60] Importantly, increased knowledge about autism and greater engagement with autistic people are associated with more favorable attitudes towards them.[61-62] That said, short-term exposure to autism acceptance training is insufficient to shift implicit negative attitudes.[63]

One way to contribute positively to the improvement of attitudes towards autism and autistic people is for the press to disseminate information that enriches knowledge about autism and the autistic experience. This could be achieved through a broader shift in autism research and practice, away from deficit-based perspectives and towards an appreciation of the

capabilities that form the foundation of fulfilling autistic lives.[64] Drawing on a neurodiversity approach,[9,15,65] the emphasis is not on attempting to change autistic individuals, but on identifying and addressing the factors that restrict the capabilities of autistic people, while creating opportunities for their well-being and flourishing.[64] This shift has the potential to encourage more favorable portrayals of autistic people in newspapers. Given that autistic individuals should possess the capability to control their own environment,[64] the involvement of autistic self-advocates and community advocacy,[65-67] including autistic journalists and media employees,[68] will be paramount in guiding newspapers towards embracing these new perspectives and promoting more inclusive views.

With regards to terminology, recommendations for newspapers should include considering how autistic individuals might perceive language around autism and to acknowledge and be vigilant about the impact of non-acceptance on the mental well-being of autistic people.[59] To illustrate some of autistic people's perspectives, in Kenny et al.,[23] autistic people advocated that "[autism] is not a disorder, I am not a disordered version of a non-autistic person" and that one should "[n]ever forget that autistic people are PEOPLE who are complex and not fundamentally broken in some way" (p. 448). Regarding person-first language, a community member highlighted that "[s]eparating the person from their autism is damaging, as it reinforces opinions about autism being a 'thing' that can be removed, something that may be unpleasant and unwanted, and something that is not just another aspect of a whole, complete and perfect individual human being" (in Kenny et al.[23], p. 448). It is equally important to provide authors with relevant training and raise their awareness about the availability of more inclusive alternatives in mental health research. For instance, replacing terms such as "risk" and "co-morbid" with accurate equivalents like "likelihood" and "co-occurring" presents a more inclusive approach that challenges the deficit-oriented interpretations prevalent in the majority of published autism research. [17, 19, 69]

Limitations and future work

The present study is not without its shortcomings. First, two of our coders chose "uncodable" for a much larger number of quotes than the others, which meant that we needed to exclude a substantial portion of their data.

Second, that the five coders did not have high agreement on their codes might be seen as a potential limitation of our study. Critically, however, it was not the aim of this study to achieve consensus or high agreement amongst our autistic experts, nor to reconcile conflicts through moderation. Instead, the emphasis was on the inclusivity of different perspectives. Future studies should explicitly address the source of potentially different views in autistic coders. In addition to establishing how preferences for identity-first or person-first language, which are intrinsic parts of people's identity or not, might affect coding, it would be interesting to measure internalized stigma[70-71] in coders and how this could impact their competence ratings.

Moreover, although the inclusion of autistic experts as coders was a notable strength in the study, and our research procedures were meticulously crafted to ensure that coding took place without knowledge of the specific origin of quotes, the composition of the sample and the research questions of the study raise the possibility that the encoding may have simply mirrored the pre-existing terminology preferences of our autistic experts or their understanding of the study and its research aims. Similarly, due to the nature of the coding task we developed, it is possible that the warmth and competence values assigned to the quotes, as well as the coders' confidence in these judgments, could be different if more context were provided. The potential impact of these confounds merits exploration in future studies.

Additionally, it remains unclear how non-autistic coders would rate the quotes and whether there would be any differences between these coders. It is plausible that non-autistic people might perceive the texts as less negative, given that they do not bear the brunt of the sentiments portrayed. This investigation would have implications for understanding the impact of press representations within the framework of the double-empathy problem.[72-73] Similarly, it would be interesting to examine how parents of autistic children or non-autistic individuals with autistic people, who are often the protagonists of newspaper stories about autism,[44,46] would assess the sentiments expressed in press quotes.

Finally, this study aimed to investigate the impact of impersonal references to autism and the differences between identity-first and person-first language. While these dimensions are crucial for understanding how language influences perceptions of autism, it is important to acknowledge that there are other language, terminology, and topic-related issues that require

attention. For example, terms such as "neurodiversity", "difference", "condition", "disability", "impairment", or "disorder", as well as "support", "treatment", or "cure", and controversial topics such as the MMR vaccine[74] or Applied Behavior Analysis-based intervention[75] also impact perceived judgments regarding the representation of autism.

Conclusions

Our study confirms that the portrayal of autism in British newspapers is largely negative and stereotypical. However, our results highlight that language and terminology may play a crucial role in the quality of the press representation of autism and, in turn, shaping public perceptions of autism. Associating autism with a person rather than alluding to autism amorphously, and using identity-first rather than person-first language, appear to be linked to more positive representations of autism and autistic people.

CRediT author statement

Themis Karaminis: Conceptualisation, Methodology, Formal analysis, Visualisation, Writing - Original Draft; **Monique Botha:** Conceptualisation, Methodology, Writing - Original Draft; **Sophie Longley:** Data analysis, Writing - Review & Editing; **Krysia Waldock:** Data analysis, Writing - Review & Editing; **Soph Storey:** Data analysis, Writing - Review & Editing; **Nick Ransom:** Data analysis, Writing - Review & Editing; **Khiah Strachan:** Data analysis, Writing - Review & Editing; **Elizabeth Pellicano:** Conceptualisation, Methodology, Data analysis, Writing - Review & Editing. This article has been submitted solely to Autism in Adulthood and is not published, in press, or submitted elsewhere.

Authors' disclosure statements

The authors have no competing interests of which they are aware.

Funding statement

The authors acknowledge the financial support of the British Academy/Leverhulme Small Research Grant SRG20\201250 "Implicit attitudes towards autism in the British Press", awarded to TK. EP was also supported by an Australian Research Council Future Fellowship (FT190100077).

The views expressed are the views of the authors alone and do not necessarily represent the views of their organizations or funding sources.

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Figure legends

Figure 1

Two-dimensional plot of average warmth and competence values for the 1,000 quotes, with color-coded confidence levels based on the autistic experts' reported confidence judgments. The Root Mean Square of confidence judgments for warmth and competence values was used (to aid visualization). The dashed vertical and horizontal lines indicate the average warmth and competence values, respectively. The four areas depicted in different shades of gray correspond to the categories based on the Stereotype Content Model (SCM; Cuddy et al.[50]): (A) Low warmth and low competence, including quotes with average warmth **<** 0.5 and average competence **<** 0.5; (B) Low warmth and high competence, including quotes with average warmth **<** 0.5 and average competence ⩾ 0.5; (C) High warmth and low competence, including quotes with average warmth ⩾ 0.5 and average competence < 0.5; and (D) High warmth and high competence, including quotes with average warmth ⩾ 0.5 and average competence ⩾ 0.5. The numerical values listed for each category correspond to the count of quotes that fall into that particular area. Note that the scatterpolot does not show overlapping points (quotes with the same warmth and competence values).

Figure 2

Perceived sentiment and terminology. The pie charts on the top show the distribution of quotes across the different areas based on the SCM for quotes making impersonal references to autism (left), quotes using identity-first language (center), and quotes using person-first language (right). The violin plots at the lower part show average warmth (left) and competence (right) values based on the same categorization.

Figures

Figure 1

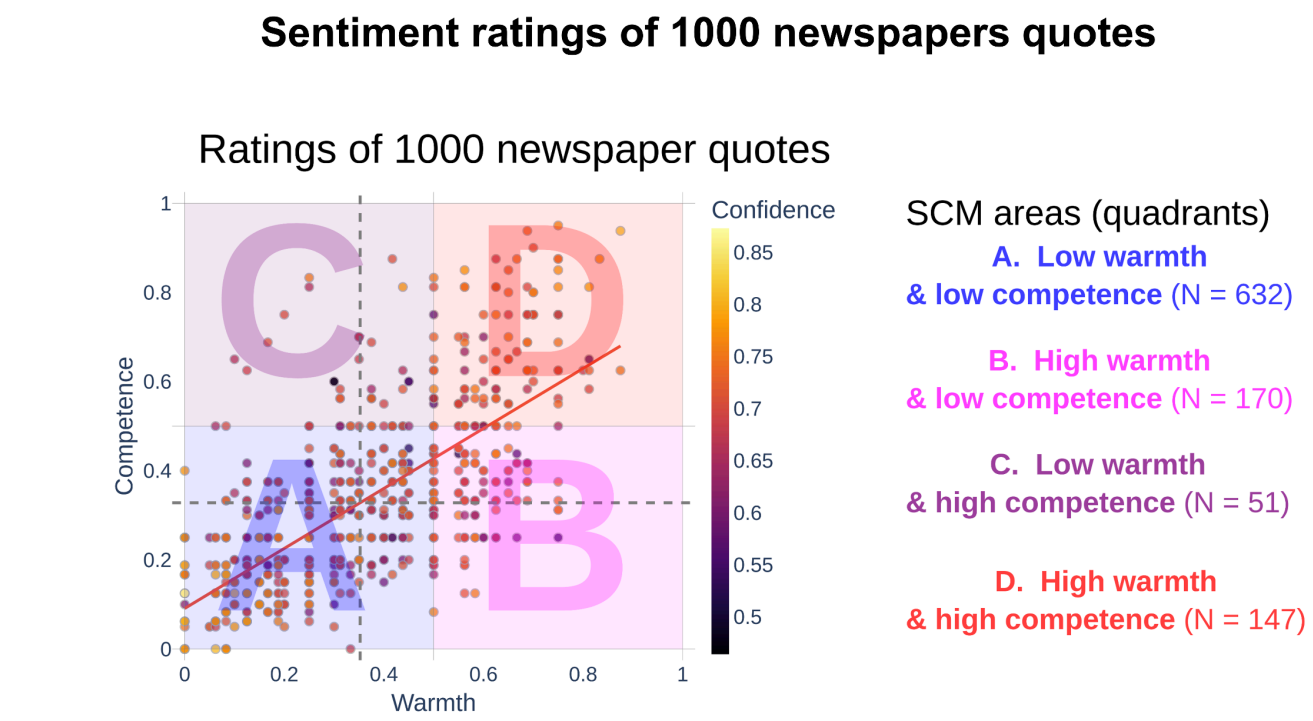
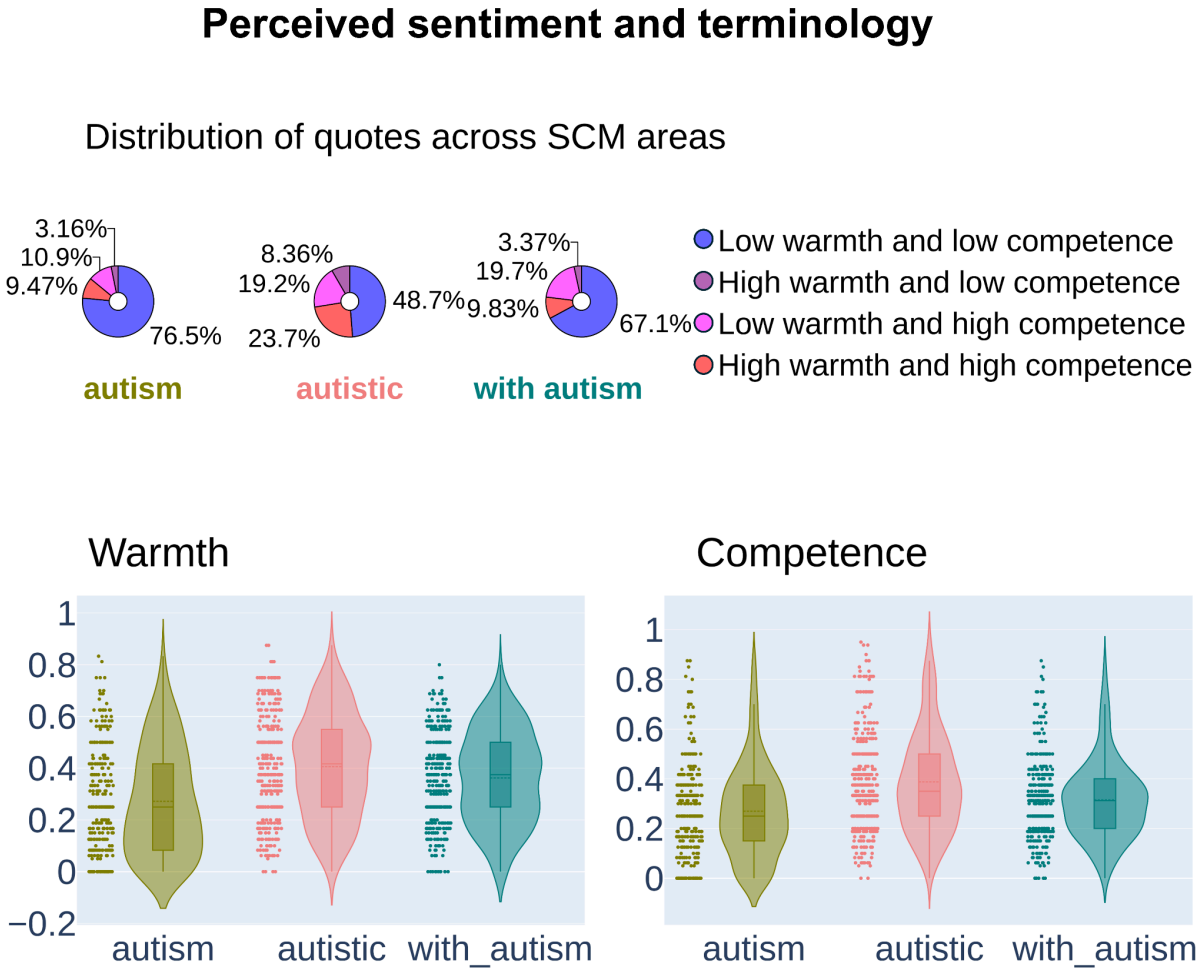


Figure 2


Perceived sentiment and terminology
Distribution of quotes across SCM areas
3.16%
10.9%
9.47%
76.5%
8.36%
19.2%
48.7%
23.7%
3.37%
19.7%
9.83%
67.1%
autism
autistic
with autism
Low warmth and low competence
High warmth and low competence
Low warmth and high competence
High warmth and high competence
Warmth
Competence
1
0.8
0.6
0.4
0.2
0
−0.2
autism
autistic
with_autism

	Research Question	(Sub)category of quotes	Counts of LL[1] quotes	Counts of LH[2] quotes	Counts of HL[3] quotes	Counts of HH[4] quotes	*Pairwise statistical comparison: LL vs HH*	*Pairwise statistical comparisons: LL between quote categories*	*Pairwise statistical comparisons: HH between quote categories*
1	Overall sentiment	All	632	51	170	147	***BIC[5] = 317.7, "very strong"***	*n/a*	*n/a*
2	Terminology	Impersonal	218	9	31	27	*n/a*	*BIC = 0.8, "anecdotal"*	***BIC = 3.1, "positive evidence"***
		Personal	414	42	139	120			
		Identity-first	175	30	69	85	*n/a*	***BIC = 14.5, "very strong evidence"***	***BIC = 3.9, "positive evidence"***
		Person-first	239	12	70	35			
3	Reporting style	Tabloids	326	22	82	69	*n/a*	*BIC = −6.4, "no difference"*	*BIC = −6.2, "no difference"*
		Broadsheets	306	29	88	78			
4	Political orientation	Left-leaning	173	10	46	44	*n/a*	*BIC = −6.4, "no difference"*	*BIC = −6.9, "no difference"*
		Right-leaning	459	41	124	103			
5	Time period	Early	188	15	46	36	*n/a*	*all BICs for pairwise comparisons < 0*	*all BICs for pairwise comparisons < 0*
		Middle	179	14	50	58			
		Late	265	22	74	53			

[1]LL: Low warmth and low competence.

[2]LH: Low warmth and high competence.

[3]HL: High warmth and low competence.

[4]HH: High warmth and high competence
[5]BIC: Bayesian Information Criterion, the measure used to perform pairwise quantitative comparisons between the proportion of quotes in different categories (see p. 8 in Wilson).[54]

Note: The last three columns (in *italics*) present relevant statistical comparisons, with bold font highlighting instances in which the statistical comparisons suggest at least 'positive evidence' for reliable differences in proportions between the compared quote categories.

Table 1. Distribution of quotes across the four quadrants for the quote categories considered for Research Questions 1-5.

Research Question		(Sub)category of quotes	Warmth Mean	*Warmth SD*	Competence Mean	*Competence SD*	*Statistical comparison for Warmth*	*Statistical comparison for Competence*
1	Overall sentiment	All	0.35	*0.20*	0.33	*0.19*	*vs. neutral: z = −0.728,* ***p < 0.001***	*vs. neutral: z = −0.790,* ***p < 0.001***
2	Terminology	Impersonal	0.27	*0.21*	0.20	*0.19*	*U = 69.332,* ***p < 0.001,*** *z = -0.320*	*U = 75.626,* ***p < 0.001****, z = -0.258*
		Personal	0.38	*0.19*	0.35	*0.18*		
		Identity-first	0.41	*0.20*	0.39	*0.20*	*U = 71.754.050,* ***p = 0.004,*** *z = 0.123*	*U = 77.314,* ***p < 0.001****, z = 0.210*
		Person-first	0.36	*0.18*	0.32	*0.16*		
3	Reporting style	Broadsheets	0.35	*0.20*	0.33	*0.19*	*U = 124.997, p = 1.00, z < 0.001*	*U = 120.958, p = 0.38, z = 0.032*
		Tabloids	0.35	*0.20*	0.32	*0.19*		
4	Political orientation	Left-leaning	0.36	*0.20*	0.33	*0.18*	*U = 100.601, p = 0.74, z = 0.014*	*U = 100.443, p = 0.77, z = -0.012*
		Righ-leaning	0.35	*0.20*	0.33	*0.19*		
5	Time period	Early	0.34	*0.19*	0.32	*0.19*	*χ2(2, N = 1000) = 3.06, p = 0.22,* ε^2 *= 0.003*	χ^2*(2, N = 1000) = 6.30,* ***p = 0.04****,* ε*2 = 0.006 post-hoc: n.s. trends early-middle, p = 0.08, and middle-recent, p = 0.08*
		Middle	0.37	*0.20*	0.35	*0.20*		
		Late	0.35	*0.21*	0.32	*0.19*		

Notes:

SD: Standard Deviation; z: z-score measure of effect size in Wilcoxon signed-rank tests and Mann-Whitney U-tests; p: p-value measure of statistical significance, U: test-statistic for Mann-Whitney U-tests, χ^2: test statistic for Kruskal-Wallis ANOVAs, N: sample size, ε^2: eta-squared measure of effect size for Kruskal-Wallis ANOVAs.

The last two columns (in *italics*) present relevant statistical comparisons for warmth and competence, based on Wilcoxon signed-rank tests, Mann-Whitney U-tests, or Kruskal-Wallis ANOVAs, as appropriate. Bold font in these columns highlights instances in which the statistical comparisons suggest statistically reliable differences in warmth and competence between the compared quote categories.

Table 2.

Average warmth and competence values assigned to the quote categories considered for Research Questions 1-5.

Supplementary Materials

Language matters in British newspapers: A participatory analysis of the Autism UK Press Corpus

Themis Karaminis[1,2*], Monique Botha[3], Sophie Longley[4], Krysia Emily Waldock[5], Soph Storey[6], Khiah Strachan[7], Nick Ransom[8], Elizabeth Pellicano[9]

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1. The makeup of the sample of quotes

Supplementary Table 1.

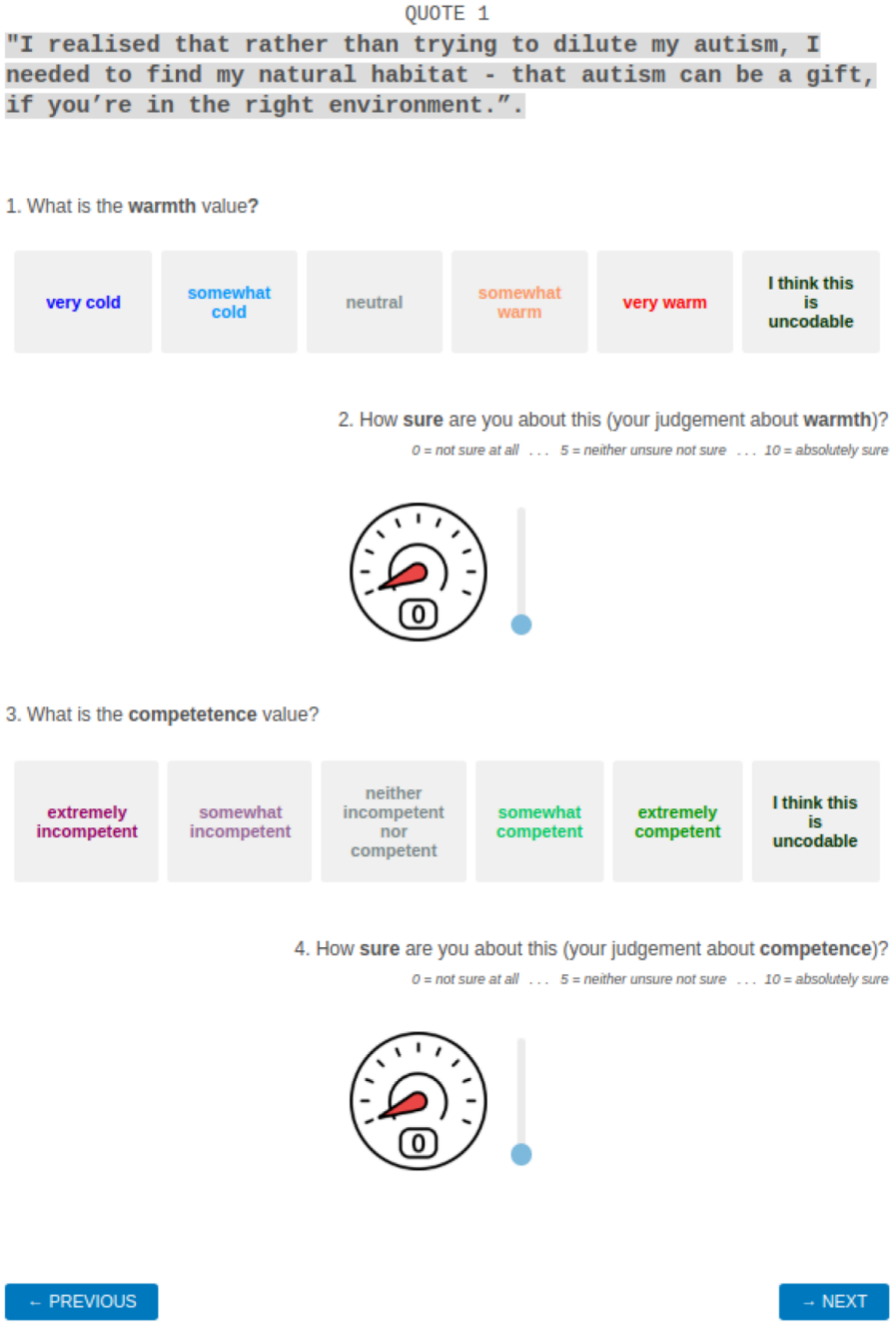
The distribution of quotes across newspapers with different reporting styles and political leanings, as well as across the publication timeline. This distribution was comparable to that of the Autism UK Press Corpus (see Figure 1, in Karaminis et al.).[1]

Criterion	Category	Counts	Percentage
Reporting style	Broadsheets	501	50.1%
	Tabloids	499	49.9%
Political orientation	Left-leaning	273	27.3%
	Right-leaning	727	72.7%
Publication time	Early (2011-2014)	285	28.5%
	Middle (2015-2017)	301	30.1%
	Recent (2018-2020)	344	34.4%

2. The interface for the presentation of quotes

Supplementary Figure 1.

The interface for the online survey.



3. Methods for the preliminary and the complementary data analyses

Preliminary analyses

We conducted a preliminary data analysis to examine potential associations between the five key measurements: average warmth, competence, confidence in warmth, confidence in competence, warmth_codability, and competence_codability. Given the non-normality of the data, we used Spearman's rho correlations to assess these associations.

Furthermore, we analyzed between-coder variability in the judgments of warmth and competence. Firstly, we examined the average codability, across quotes, for warmth and competence, and compared the frequency of "I think this is uncodable" responses in the two dimensions of the SCM across individual autistic coders. Next, we examined the range of the warmth and competence values assigned to individual quotes. Finally, we assessed the agreement between individual coders on their judgements for warmth and competence using Krippendorf's alpha. A Krippendorf's alpha higher than 0.8 is generally considered a criterion for high interrater reliability. We note, however, that the aim of this study was not for our coders to achieve consensus or high agreement. Instead, the emphasis was on the inclusivity of different perspectives and understanding the breadth of those perspectives. Therefore, while we still examined similarities and agreement between coders, we did not seek to reconcile conflicts through moderation.

Complementary analysis to mitigate confounds due to judgment confidence and codability

To ensure the results of the survey data analysis were not confounded by autistic experts' confidence in their judgments of individual quotes and the prevalence of the "I think this is uncodable" responses, we conducted analyses on two versions of the sample: the Complete and Filtered versions. The Complete version contained all 1,000 quotes, while the Filtered version was composed of 584 quotes for which the coders expressed relatively high confidence in their judgments (average confidence in warmth $\geqslant 0.7$ and confidence in competence $\geqslant 0.7$), and with at most two "I think this is uncodable" responses (out of 5) for both warmth and competence.

Additionally, for each version, we conducted a parallel analysis in which we excluded the responses of one or two of the autistic coders who perceived that a high proportion of the quotes were not codable for warmth or competence.

Importantly, the analysis of the Complete and Filtered datasets, as well as of measures based on the responses of autistic experts who reported that the great majority of quotes were codable produced the same pattern of results. Therefore, in the Results section of the main manuscript, we focus on the analysis of the Complete dataset. Findings from the analysis of the Filtered dataset and the alternative measures, as well as a supplementary analysis of variability in coders' responses and between-coder agreement, and their impact on the findings reported in the current Supplementary Materials. Furthermore, an interactive plot showing the different datasets and analyses can be accessed using the following link https://autismsentimentcoding.herokuapp.com/.

4. Results from the preliminary data analysis

The results of the analysis of associations in the Complete dataset showed a significant and positive correlation between the two dimensions of the SCM model, warmth and competence, for the sample of quotes from the Autism UK Press Corpus, $r(998) = 0.727$, $p < 0.001$. That is, when warmth values were high, competence values tended also to be high. This positive correlation was also observed for participants' confidence in their judgments of warmth and competence, $r(998) = 0.529$, $p < 0.001$, and the codability values for warmth and competence, $r(998) = 0.819$, $p < 0.001$.

Additionally, when our autistic experts assigned low values of either warmth or competence to a given quote, they tended to report higher levels of confidence in their judgments. This trend is reflected in the significant negative correlations between warmth and Confidence in warmth, $r(998) = -0.247$, $p < 0.001$, and competence and Confidence in competence, $r(998) = -0.170$, $p < 0.001$.

There was also a negative association between codability and confidence for both warmth, $r(998) = -0.083$, $p = 0.001$, and competence, $r(998) = -0.114$, $p < 0.001$, consistent with the intuition that the autistic experts would more likely choose the "I think this is uncodable" option when they were less certain about their judgement of warmth and competence conveyed in a given quote.

Regarding the agreement between individual autistic experts, there were pronounced differences in the number of quotes deemed uncodable with respect to warmth (6, 9, 8, 343, and 682) or competence (7, 7, 160, 387, 654) by individual autistic experts [warmth: $X(4, N = 1000) = 2192.90$, $p<0.001$; competence: $X(4, N = 1000) = 1674.03$, $p<0.001$]. Nevertheless, the key findings reported in this paper held when one or two of the autistic experts, who scored high proportions of quotes as uncodable, were excluded from the analysis.

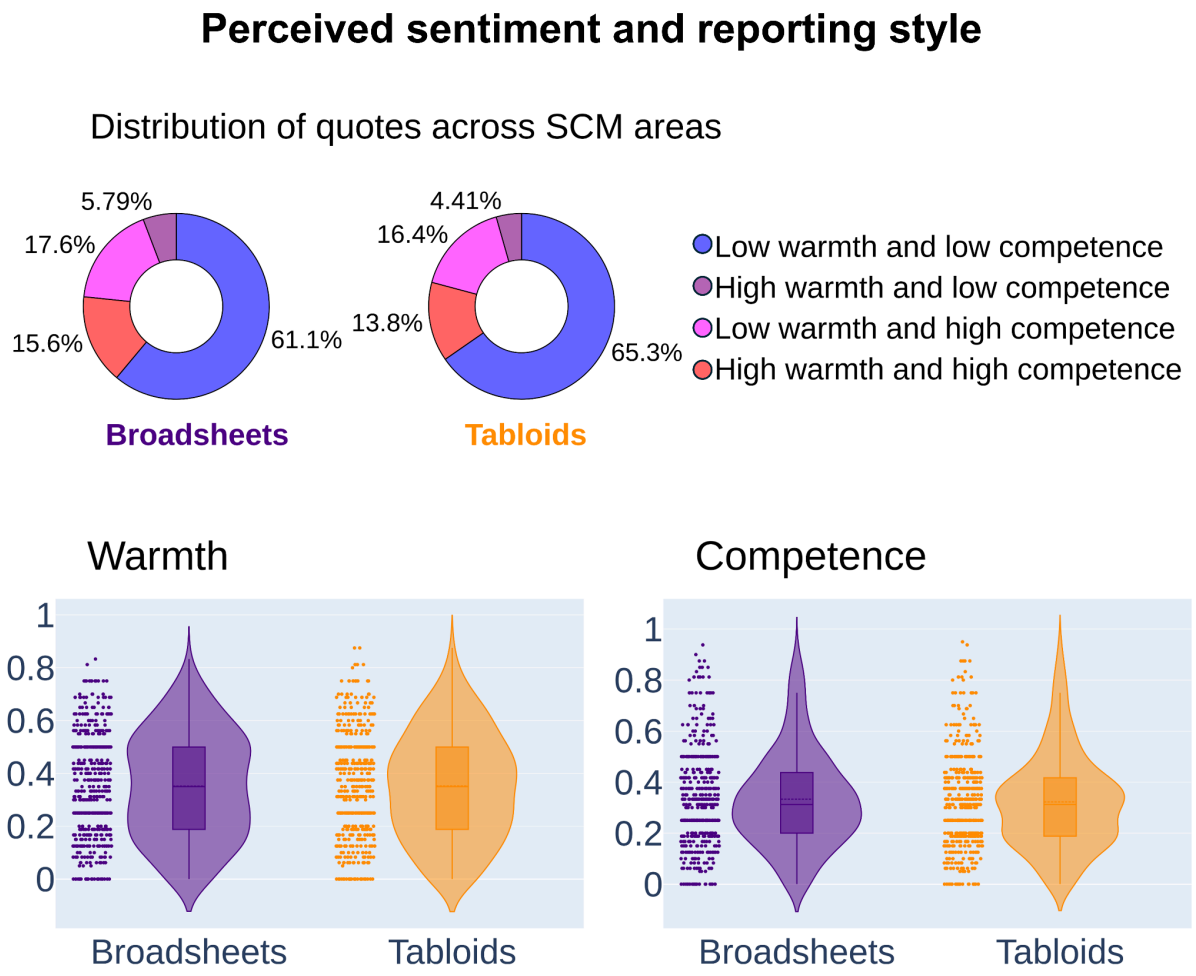
Furthermore, for quotes that were not considered uncodable, the average Krippendorf's alpha for warmth was 0.40 (range: 0.18-0.61) and for competence was 0.45 (range: 0.36-0.54). Overall, Krippendorf's alpha measures indicated moderate agreement between the individual autistic experts on their evaluations of warmth and competence. For further results on the agreement between different coders see Supplementary Materials Section 6c.

5. Results for Research Questions 3-5

Research Question 3: Limited support for higher negativity in Tabloids

Supplementary Figure 2 displays the distribution of quotes across the four SCM areas for broadsheets and tabloids. The percentage of quotes in the low warmth and low competence SCM area was slightly lower in broadsheets (k = 306, 61.08%) than tabloids (k = 326, 65.33%). Similarly, the percentage of high warmth and high competence quotes was slightly higher in broadsheets (k = 78, 15.57%) than tabloids (k = 69, 13.83%). However, quantitative analysis (Table 1) did not suggest these differences were statistically significant (Table 1). Furthermore, average warmth and competence values (Table 2) showed no statistically significant differences between newspapers with different reporting styles.

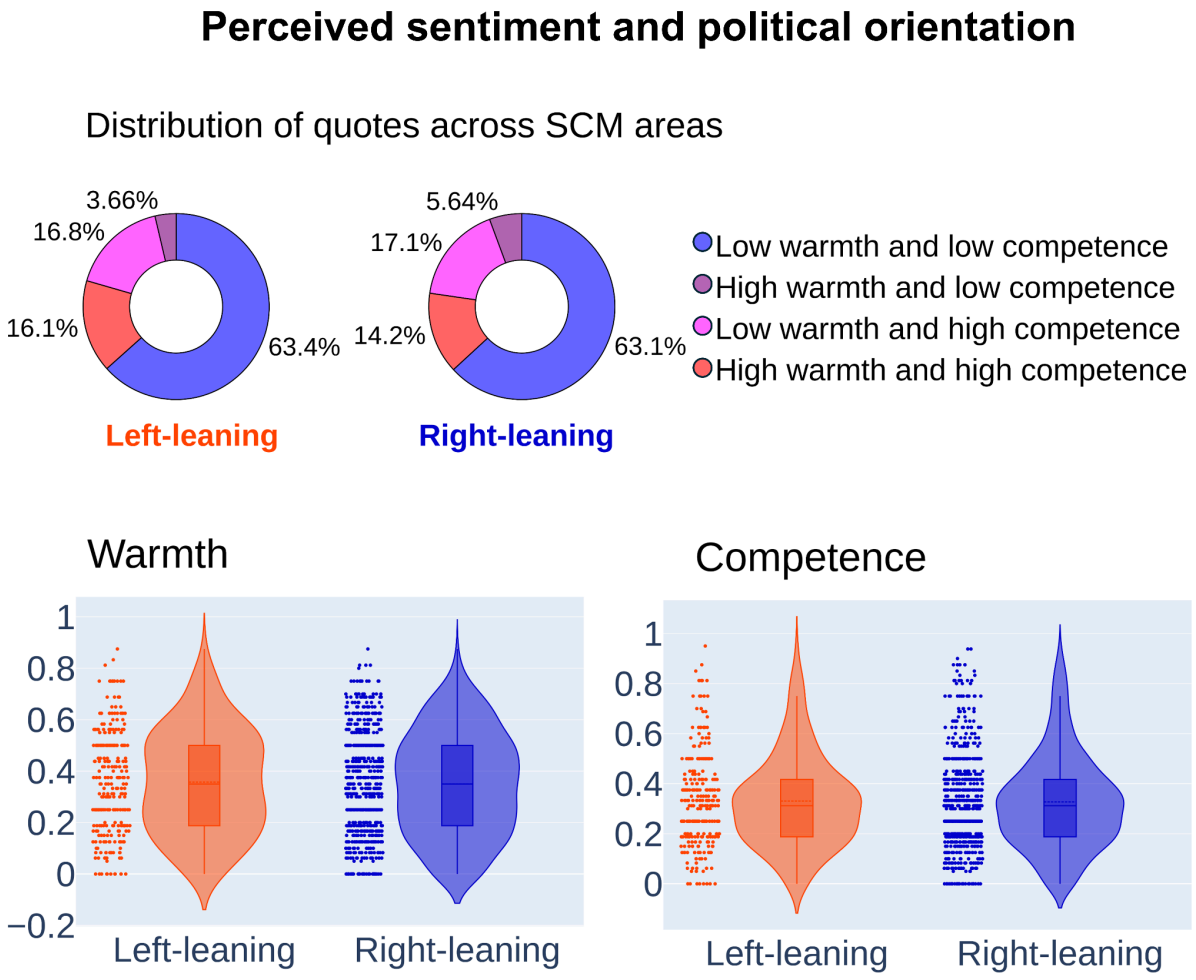
Supplementary Figure 2. Perceived sentiment and reporting style. The pie charts at the top illustrate the distribution of quotes across the four areas based on the SCM for broadsheets (on the left) and tabloids (on the right). The violin plots at the lower part show the average warmth (on the left) and competence (on the right) values.



Research Question 4: No support for differences related to political orientation

Supplementary Figure 3 depicts the distribution of quotes for left and right-leaning newspapers. Percentages of quotes in low warmth and low competence SCM area were comparable for left (k = 173, 63.37%) and right-leaning (k = 459, 63.14%) papers. The percentage of high warmth and high competence quotes was slightly higher in left (k = 44, 16.12%) than right-leaning (k = 104, 14.27%) papers, but, once again, quantitative comparisons (Table 1) suggested these differences were not significant. Likewise, average warmth and competence values (Table 2) between left and right-leaning newspapers showed no significant differences in grand means.

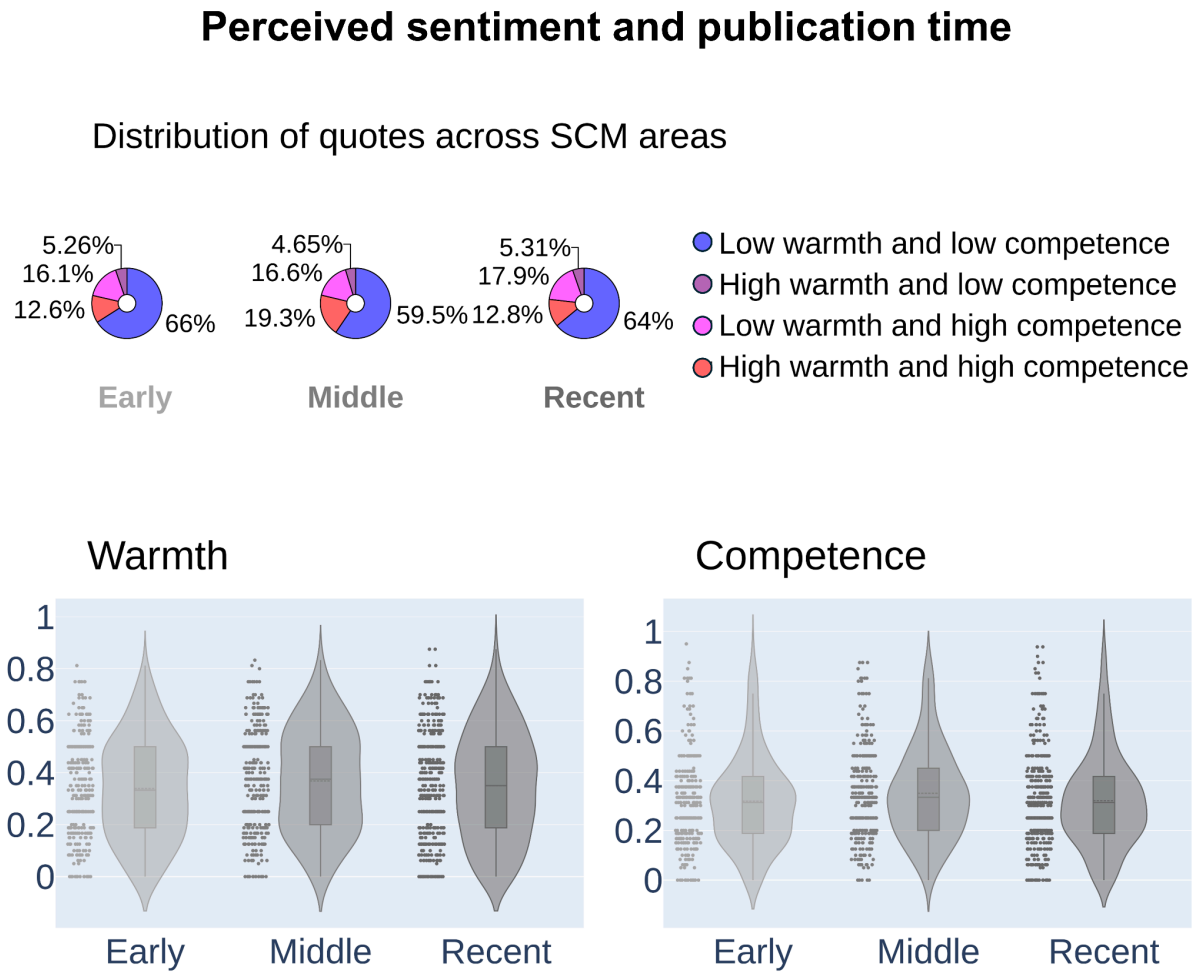
Supplementary Figure 3. Perceived sentiment and political orientation. The pie charts at the top depict the distribution of quotes across the four areas based on the SCM for left-leaning publications (on the left) and right-leaning publications (on the right). The violin plots in the lower part display the average warmth (on the left) and competence (on the right) values.



Research Question 5: Inconsistent changes over time

Supplementary Figure 4 shows the distribution of quotes across SCM areas by time period. The percentage of low warmth and low competence quotes decreased from the early (k = 188, 65.96%) to the middle period (k = 179, 59.47%), then rose again in the recent period (k = 265, 64.01%). Similarly, high warmth and high competence percentages increased from the early period (k = 36, 12.63%) to the middle period (k = 58, 19.27%), but decreased in the recent period (k = 53, 12.80%). However, quantitative comparisons (Table 1) did not suggest these trends were significant. Additionally, average warmth (Table 2) did not significantly differ across subsets, while average competence values showed marginally significant differences, mainly from a non-significant trend between the early and middle periods ($p = 0.08$), with other differences being non-significant.

Supplementary Figure 4. Perceived sentiment and publication time. The pie charts on the top show the distribution of quotes across the four SCM areas for quotes published in the Early (2011-2014) (left), the Middle (2015-2017), and the Recent (2018-2020) period (right). The violin plots at the lower part show average warmth (left) and competence (right) values based on the same categorization.



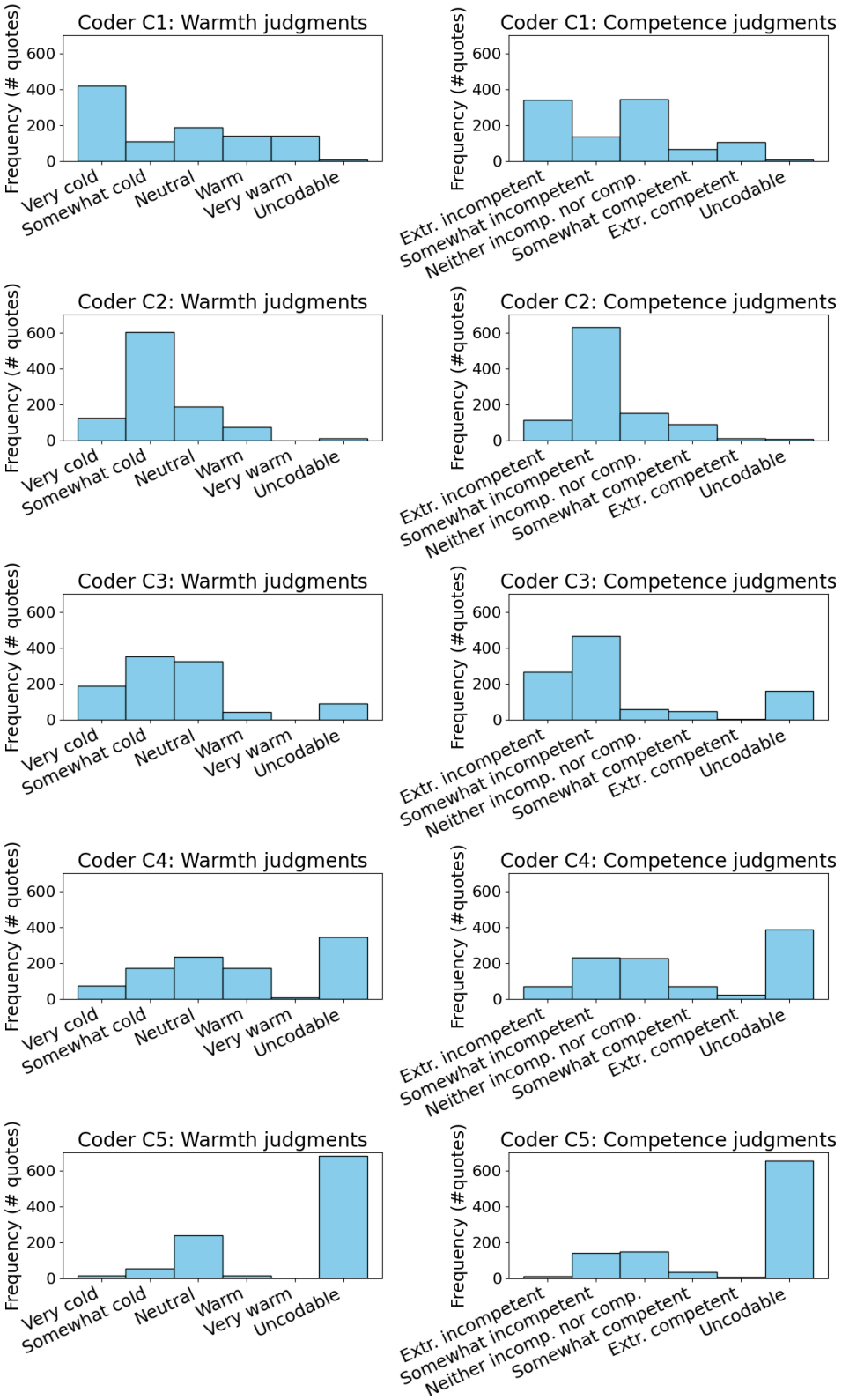
6. Analysis of data from individual coders

This analysis examines variability in the responses from individual coders, the agreement between different coders, and their potential impact on the results reported in the main manuscript.

6a. Responses of individual coders

To consider potential patterns in ratings of warmth and competence potentially associated with the presence of "uncodable" responses, we generated histograms of the ratings of warmth and competence for individual coders. The histograms are shown in Supplementary Figure 4 below. They suggest that Coders 4 and 5, who had a high rate of "uncodable" responses also provided a lot of neutral judgements in both dimensions. We think that this pattern could suggest that these two coders were more conservative in their judgements than the other coders.

Supplementary Figure 5. Histograms of the judgments of warmth and competence for the five individual coders (C1 to C5), including responses that a given quote was deemed uncodable. Extr. (in)competent: extremely incompetent; Neither incomp. nor comp.: neither incompetent nor competent; # quotes: number of quotes.



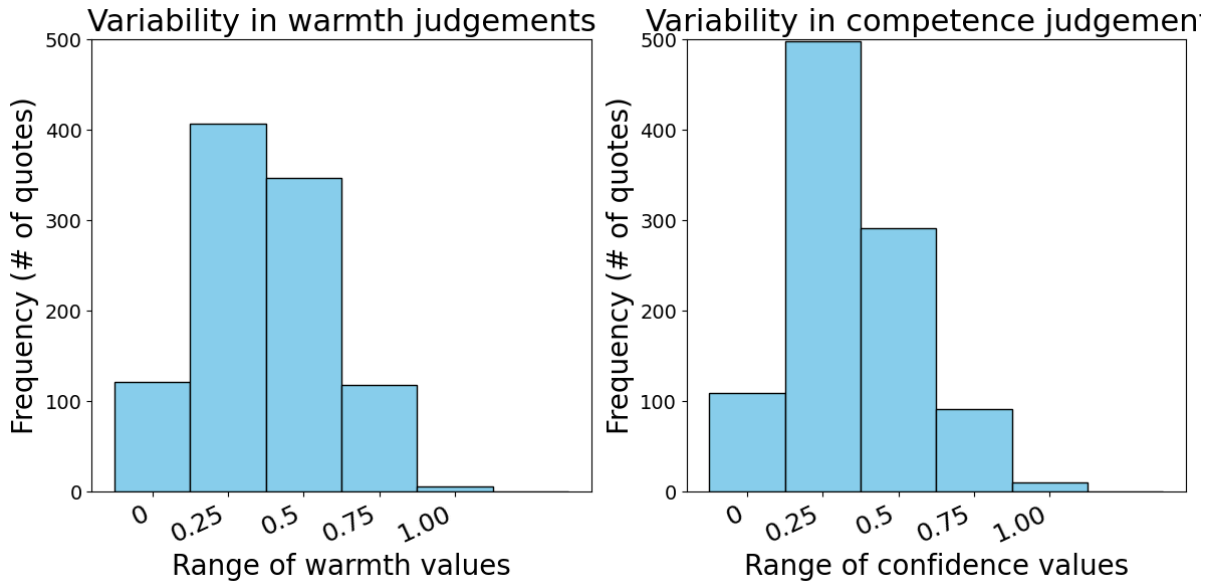
6b. Variability in judgements of warmth and competence

To assess the level of variability among coders in their judgments of warmth and competence, we measured the range of values assigned by different coders to each quote. This was done by calculating the difference between the highest and lowest values for both warmth and competence judgments. Responses that a quote was uncodable were excluded from this analysis. A range of 0 indicates complete agreement among all coders who did not think a given quote was uncodable, while ranges of 0.25, 0.50, 0.75, or 1 represent differences of one, two, three, or four levels on the Likert scale, respectively.

Histograms illustrating these ranges of warmth and competence judgments are presented below in Supplementary Figure 5. The majority of quotes show a maximal difference of 0.25 or only one level on the Likert scale (warmth: k = 407; competence: k = 498). Additionally, there are 122 quotes for warmth and 109 quotes for competence where there was no difference at all in the coders' assessments. Hence, in approximately half of the quotes, the most pronounced discrepancy among the coders is one level on the Likert scale.

Furthermore, the average warmth range across all quotes is 0.37 (SD = 0.21), while the average competence range is 0.35 (SD = 0.21). This corresponds to one or two levels on the Likert scale.

Supplementary Figure 6. Variability in judgements of warmth and competence between different coders. The histograms show the range of warmth and competence judgments given to all individual quotes that were found codable by at least two coders. A range of 0 suggests that all coders assigned the same value; while 0.25, 0.50, 0.75, and 1 represent differences of one, two, three, and four levels on the Likert scale, respectively. (# or quotes: number of quotes).



6c. Heatmaps showing agreement between coders

Here, we examine interrater agreement between different coders based on heatmaps with paired comparisons. In addition to heatmaps based on Krippendorf's alpha (results reported in Supplementary Materials Section 4), we provide heatmaps based on Spearman's correlation coefficient. The rationale for this is that Krippendorf's alpha is a conservative measure because it estimates interrater agreement taking into account agreement by chance. Spearman's rho can also capture similarity in ordinal data, and as it does not take into account agreement by chance, is slightly higher than the conservative estimates based on Krippendorf's alpha.

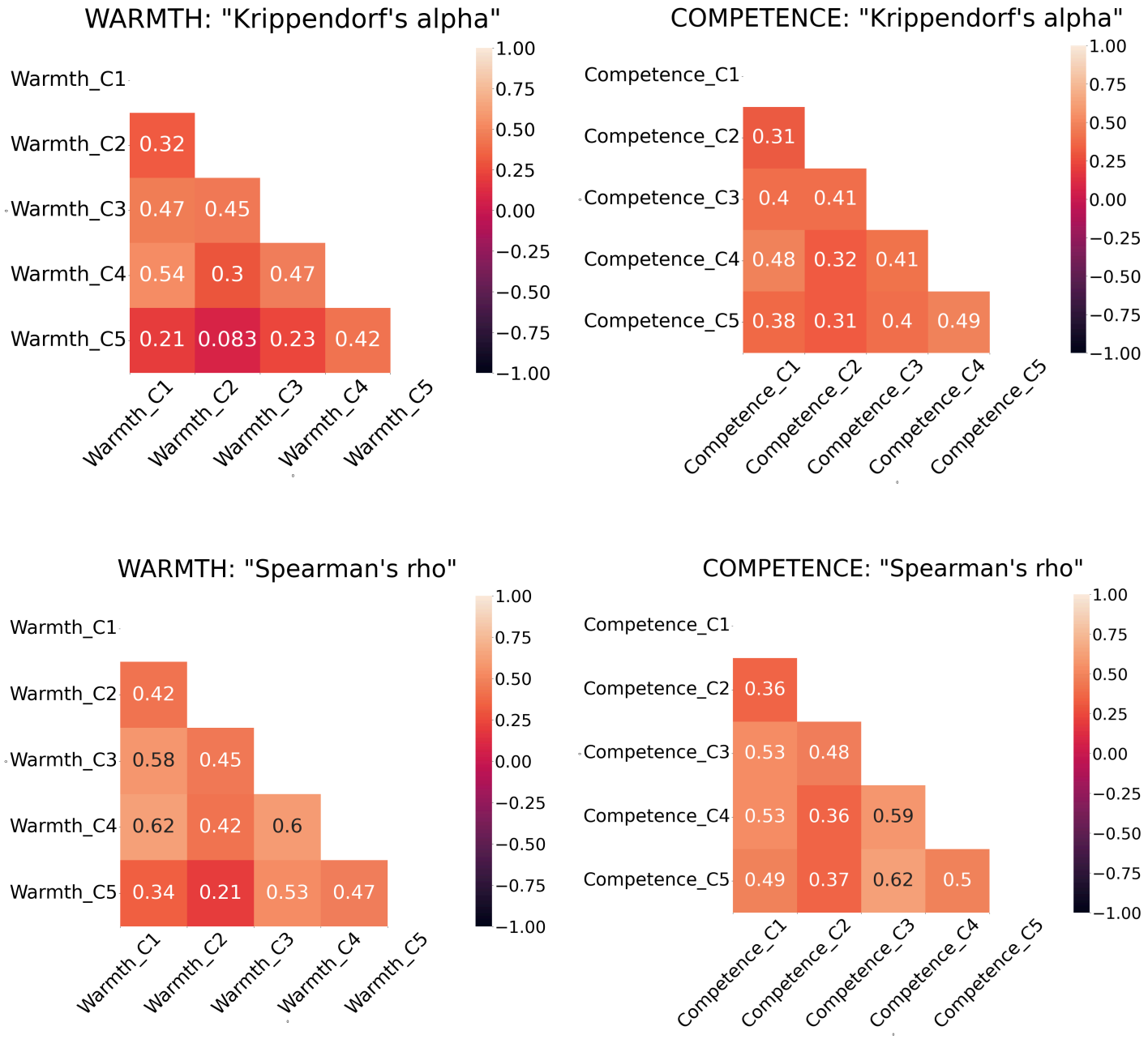
The heatmaps are shown in the Supplementary Figure 6 below. For Krippendorf's alpha, the smallest value of agreement is 0.083 (warmth judgements of Coder 2 and Coder 5) and the largest is 0.54 (warmth judgements of Coder 1 and Coder 4). For Spearman's rho the smallest value is 0.21 (warmth judgements of Cider 2 and Coder 5) and the largest values are 0.62 (warmth judgements of Coder 1 and Coder 4 and competence judgements of Coder 3 and Coder 5).

For Krippendorf's alpha, the average alpha is 0.35 for warmth and 0.39 for competence (these two measures are distinct from the overall alphas in the manuscript). For Spearman rho, the average is 0.46 for warmth and 0.43 for competence.

Overall, the two agreement measures indicate moderate agreement between the individual autistic experts on their evaluations of warmth and competence.

Supplementary Figure 7.

Heatmaps showing agreement between individual coders (C1 to C5). Left-hand side: warmth; right-hand side: competence; top: Kirpendorff's alpha measure; bottom: Spearman's rho measure of agreement.



6d. Analysis of data from individual coders

To examine the impact of this moderate agreement on our analysis, we investigated the extent to which the data from individual coders agreed with the analysis of the overall data reported in the main manuscript and the expected patterns based on the literature.

Supplementary Tables 2 to 11 below show results for the five research questions addressed in our study. For each question, we considered comparisons focusing on the overall sentiment value in quotes, which is the RMS (root mean square) of warmth and competence, as well as comparisons of the percentages of quotes in the low warmth low competence (LL) and the high warmth high competence (HH) quadrants of the SCM.

In the analysis of data from individual coders, the sentiment measure was deemed more reliable than the percentage of quotes in the LL and HH quadrants. This is because of the following artefact that applies to the latter measure. For the data from individual coders, the membership in the LL quadrants can vary considerably depending on whether a value of 0.5 is considered to correspond to HIGH (high warmth or high competence accordingly), as in the analysis of the averaged data, or LOW (low warmth or low competence accordingly). For instance, for Coder 4, 49.57% of the quotes fall in the high-high quartile if 0.5 is interpreted as HIGH; but this percentage falls to 13.03% if 0.5 is interpreted as LOW. Importantly, this artefact affects the averaged data to a much lesser degree because there are fewer values equal to 0.5 due to averaging.

Research question 1: "Overall negative sentiment" towards autistic people in newspapers

As shown in Supplementary Table 2, below, for individual coders, the overall sentiment is 0.34-0.37, well below the 0.5 of neutrality. With regards to whether a higher percentage of quotes fall in the LL than in HH quadrant, Supplementary Table 3 (see leftmost columns entitled LL and HH) suggests that this was true only for three coders (Coder 1, 2 and 3); as for Coders 4 and 5, more quotes fell in the HH than the LL area. However, this was reflective of the artefact related to the interpretation of "neutral" or "neither incompetent nor competent" (0.5) values as HIGH. When these values are considered to be LOW (see rightmost columns entitled LL and HH in Supplementary Table 3), the individual data conforms with the expected pattern LL < HH for all coders.

Overall, the individual data analysis strongly supports that there is an overall negative sentiment towards autistic people in newspapers. This result aligns with the analysis of the averaged results from all coders reported in the manuscript.

Supplementary Table 2. Average sentiment across all quotes that were deemed codable for both warmth and competence by the five individual coders.

Coder(s)	Number of codable quotes	Sentiment (RMS[1] of warmth and competence)	***Agreement with the predicted pattern: Sentiment < 0.5***
Coder 1	993	0.35	*Strongly agrees*
Coder 2	990	0.35	*Strongly agrees*
Coder 3	792	0.34	*Strongly agrees*
Coder 4	575	0.36	*Strongly agrees*
Coder 5	317	0.37	*Strongly agrees*
All Coders	1000	0.35	*Strongly agrees*

[1] RMS: root mean square

[1]*Note:* The last column (in *italics*) assesses the agreement of the responses of all individual coders, as well as the aggregated data, with the predicted pattern for Research Question 1, i.e., that the overall sentiment should be lower than the point of neutrality. A difference of a sentiment value from neutrality less than 0.01 would be considered negligible, suggesting neither agreement nor disagreement with the predicted pattern; otherwise, a difference equal to or greater than 0.01 and smaller than 0.05 would be considered moderate, suggesting moderate agreement or disagreement with the predicted pattern, as appropriate; and a difference equal to or greater than 0.05 was considered sizeable and taken to indicate strong agreement or disagreement (as appropriate).

Supplementary Table 3. Quadrant membership across all quotes for individual coders.

Coder(s)	LL[1] when 0.5 = HIGH	HH[2] when 0.5 = HIGH	L when 0.5 = LOW	HH when 0.5 = LOW	***Agreement with the predicted pattern that LL > HH***
Coder 1	36.56	35.35	67.47	12.79	*Moderately agrees when 0.5 is interpreted as HIGH; strongly agrees when 0.5 is interpreted as LOW.*
Coder 2	66.26	17.58	66.26	5.05	*Strongly agrees under both interpretations (HIGH or LOW).*
Coder 3	60.61	9.85	60.61	1.64	*Strongly agrees under both interpretations (HIGH or LOW).*
Coder 4	31.95	49.57	72.71	13.03	*Mixed; strongly disagrees and strongly agrees depending on whether 0.5 is interpreted as HIGH or LOW.*
Coder 5	17.35	54.89	85.49	2.52	*Mixed; strongly disagrees and strongly agrees depending on whether 0.5 is interpreted as HIGH or LOW.*
All coders	63.20	14.70	75.60	9.00	*Strongly agrees under both interpretations for 0.5 (as HIGH or LOW).*

[1] LL: low warmth and low competence.

[2] HH: high warmth and high competence.

[1]*Note:* The last row presents results from the aggregated data from all coders. The percentages of quotes falling in the LL and HH quadrants were calculated under two alternative interpretations for values of warmth and competence equal to 0.5 ("neutral" and "neither incompetent nor competent", correspondingly). In particular, in the leftmost LL and HH columns, 0.5 was interpreted as HIGH, while in the rightmost LL and HH columns 0.5 was interpreted as LOW. The last column (in italics) assesses agreement with the predicted pattern for Research Question 1, i.e., that more quotes should fall in the LL than in the HH quadrant. A difference in the percentages of LL and HH quotes less than or equal to 1% was considered negligible, suggesting neither agreement nor disagreement; otherwise, a difference less than or equal to 5% was taken to suggest moderate agreement or disagreement as appropriate; and a difference greater than 5% were taken to indicate strong agreement or disagreement (as appropriate).

Research question 2: "Effect of terminology and language"

In terms of overall sentiment, as shown in Supplementary Table 4, the individual data from all five coders agree that impersonal references to autism convey more negative sentiment than references including autistic people, while person-first language conveys less positive sentiments than identity-first language. This is consistent with the main analysis of the manuscript.

In terms of membership of quotes in the LL and HH quadrants, as illustrated in Supplementary Table 5, the individual data from three coders (Coder 1, 3, and 5) align with the predicted patterns. However, the data from Coders 2 and 4 agree with certain aspects of the predicted patterns while disagreeing with others.

Supplementary Table 4. Sentiment and terminology.

Coder(s)	Sentiment Imp.[1]	Sentiment PFL[2]	Sentiment IFL[3]	***Agreeement with the predicted pattern for sentiment: Imp. < PFL < IFL.***
Coder 1	0.28	0.35	0.40	*Strongly agrees; Imp. < PFL < IFL.*
Coder 2	0.28	0.35	0.41	*Strongly agrees; Imp. < PFL < IFL.*
Coder 3	0.27	0.34	0.39	*Strongly agrees; Imp. < PFL < IFL.*
Coder 4	0.31	0.35	0.41	*Moderately/strongly agrees; Imp. <≈ PFL < IFL.*
Coder 5	0.33	0.35	0.42	*Moderately/strongly agrees; Imp. <≈ PFL < IFL.*
All Coders	0.28	0.35	0.41	*Strongly agrees; Imp. < PFL < IFL.*

[1] Imp: Impersonal, referring to quotes using impersonal references to autism.

[2] PFL: Person-first language,

[3] IFL: Identity-first language.

[1]*Note:* Sentiment was computed as the root mean square (RMS) of warmth and competence judgments. The last row presents results from the aggregated data from all coders. The last column (in *italics*) evaluates the agreement of responses from all individual coders, as well as the aggregated data, with the predicted pattern for Research Question 2. This pattern suggests that overall sentiment should be lower for quotes including impersonal references to autism than for quotes referring to individuals, and also that sentiment should be lower for quotes using person-first language than identity-first language. Differences in sentiment values between different categories of quotes less than 0.01 were considered negligible (indicated with ≈), suggesting neither agreement nor disagreement with the predicted pattern. Differences equal to or greater than 0.01 and less than 0.05 were considered moderate (indicated with <≈ or >≈) and taken to suggest moderate agreement or disagreement with the predicted pattern, as appropriate. Differences equal to or greater than 0.05 were deemed sizable (indicated with < or >) and interpreted to suggest strong agreement or disagreement, as appropriate.

Supplementary Table 5. Quadrant membership and terminology.

Coder(s)	LL Imp.[1]	LL PFL[2]	LL IFL[3]	*Agreeement with the predicted pattern for LL: Imp. > PFL > IFL*	HH Imp.[4]	HH PFL[5]	HH IFL[6]	*Agreeement with the predicted pattern for HH: Imp. < PFL < IFL*
Coder 1	44.48	37.18	29.69	*Strongly agrees; Imp. > PFL > IFL.*	27.05	36.06	41.18	*Strongly agrees; Imp. < PFL < IFL.*
Coder 2	77.66	81.13	42.21	*Mixed. Strongly disagrees; Imp. < PFL. Strongly agrees; PFL > IFL*	9.57	4.23	37.39	*Mixed. Strongly disagrees; Imp. > PFL; Strongly agrees, PFL < IFL.*
Coder 3	75.80	55.99	53.63	*Strongly/moderately agrees; Imp. > PFL >≈ IFL.*	6.39	9.15	13.15	*Moderately agrees; Imp. <≈ PFL <≈ IFL.*
Coder 4	45.16	27.90	28.83	*Mixed. Strongly agrees; Imp. > PFL. Does not agree/disagree; FPL ≈ IFL.*	41.94	51.93	51.35	*Mixed. Strongly agrees; Imp. < PFL. Does not agree/disagree; FPL ≈ IFL.*
Coder 5	20.99	16.94	15.18	*Strongly/moderately agrees; Imp. > PFL >≈ IFL.*	50.62	55.65	57.14	*Strongly/moderately agrees; Imp. < PFL <≈ IFL.*
All Coders	76.49	67.13	48.75	*Strongly agrees; Imp. > PFL > IFL.*	9.47	9.83	23.68	*Mixed. Does not agree/disagree; Imp. ≈ PFL. Strongly agrees; PFL < IFL*

[1] LL Imp.: low warmth and low competence in quotes using impersonal references to autism.

[2] LL PFL: low warmth and low competence in quotes using person-first language.

[3] LL-IFL: low warmth and low competence in quotes using identity-first language.

[4] HH Imp.: high warmth and high competence in quotes making impersonal references to autism.

[5] HH PFL: high warmth and high competence in quotes using person-first language.

[6] HH-IFL: high warmth and high competence in quotes using identity-first language.

[1]*Note:* The last row presents results from the aggregated data from all coders. The two columns in *italics*, following the percentage columns for LL (LL Imp., LL PFL, LL IFL) and HH (HH Imp., HH PFL, HH IFL), evaluate agreement with the predicted pattern. According to these, membership in the LL (HH) quadrant should be higher (lower) for quotes using impersonal language than for quotes referring to individuals, and similarly for quotes using person-first language than identity-first language. Differences in percentages for LL or HH between different categories of quotes less than 1% were considered negligible (indicated with ≈), indicating neither agreement nor disagreement with the predicted pattern. Differences equal to or greater than 1% and less than 5% were considered moderate (indicated with <≈ or >≈) and suggested moderate agreement or disagreement with the predicted pattern, as appropriate. Differences equal to or greater than 5% were deemed sizable (indicated with < or >), indicating strong agreement or disagreement with the predicted pattern, as appropriate.

Research question 3: "Effect of reporting style"

For individual coders, the sentiment values (Supplementary Table 6) show no differences between tabloids and broadsheets for three coders, but small differences consistent with the expected pattern in the other two. Results on the membership in LL and HH areas (Supplementary Table 7) are inconsistent, with small differences that moderately agree, and, for one coder, moderately disagree with the expected pattern. Based on the sentiment measure, we conclude that the individual data provide very subtle support (by majority) for the notion that quotes from broadsheets are more negative than those from tabloids. This is consistent with the results from the aggregated data from all coders, as reported in the main paper (Tables 1, 2) and discussed in further detail in Section 5 of the current Supplementary materials.

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Supplementary Table 6. Sentiment and reporting style.

Coder(s)	Sentiment Broadsheets	Sentiment Tabloids	***Agreement with the predicted pattern for sentiment: Broadsheets > Tabloids***
Coder 1	0.35	0.35	*Does not agree or disagree; Broadsheets ≈ Tabloids.*
Coder 2	0.35	0.35	*Does not agree or disagree; Broadsheets ≈ Tabloids.*
Coder 3	0.34	0.33	*Moderately agrees; Broadsheets >≈ Tabloids.*
Coder 4	0.37	0.36	*Moderately agrees; Broadsheets >≈ Tabloids.*
Coder 5	0.37	0.37	*Does not agree or disagree; Broadsheets ≈ Tabloids.*
All Coders	0.35	0.35	*Does not agree or disagree; Broadsheets ≈ Tabloids.*

[1]Note: Sentiment was computed as the root mean square (RMS) of warmth and competence judgements. The last row presents results from the aggregated data from all coders. The last column (in *italics*) assesses the agreement of the responses of all individual coders, as well as the aggregated data, with the predicted pattern for Research Question 3, i.e., that the overall sentiment should be higher in quotes from broadsheets than in quotes from tabloids. Differences in sentiment values between different categories of quotes less than 0.01 were considered negligible (indicated with ≈), suggesting neither agreement nor disagreement with the predicted pattern. Differences equal to or greater than 0.01 and less than 0.05 were considered moderate (indicated with <≈ or >≈) and taken to suggest moderate agreement or disagreement with the predicted pattern, as appropriate. Differences equal to or greater than 0.05 were deemed sizable (indicated with < or >) and interpreted to suggest strong agreement or disagreement, as appropriate.

Supplementary Table 7. Quadrant membership and reporting style.

Coder(s)	LL Broad.[1]	LL Tabl.[2]	***Agreement with the predicted pattern for LL: Broad. < Tabl.***	HH Broad.[3]	HH Tabl.[4]	***Agreement with the predicted pattern for HH: Broad. > Tabl.***
Coder 1	36.00	37.12	*Moderately agrees; Broad. <≈ Tabl.*	36.00	34.69	*Moderately agrees; Broad. >≈ Tabl.*
Coder 2	67.00	65.52	*Moderately disagrees; Broad. >≈ Tabl.*	17.51	17.65	*Moderately disagrees; Broad. <≈ Tabl.*
Coder 3	61.58	59.65	*Moderately disagrees; Broad. >≈ Tabl.*	10.69	9.02	*Moderately agrees; Broad. >≈ Tabl.*
Coder 4	32.86	31.08	*Moderately disagrees; Broad. >≈ Tabl.*	49.47	49.66	*Neither agrees or disagrees; Broad. ≈ Tabl.*
Coder 5	16.56	18.18	*Moderately agrees; Broad. < Tabl.*	55.83	53.90	*Moderately agrees; Broad. >≈ Tabl.*
All Coders	61.08	65.33	*Strongly agrees; Broad. < Tabl.*	15.57	13.83	*Moderately agrees; Broad. >≈ Tabl.*

[1] LL Broad.: low warmth and low competence in quotes from Broadsheets.

[2] LL Tabl: low warmth and low competence in quotes from Tabloids.

[3] HH Broad.: high warmth and high competence in quotes from Broadsheets.

[4] HH Tabl: high warmth and high competence in quotes from Tabloids.

[1]*Note:* The last row presents results from the aggregated data from all coders. The two columns in *italics*, following the percentages for LL (LL Broad. and LL Tabl.) and HH (HH Broad. and HH Tabl.), assess agreement with the predicted pattern for Research Question 3, i.e., that the membership in the LL (HH) quadrant should be lower (higher) in Broadsheets than in Tabloids. Differences in percentages for LL or HH between different categories of quotes less than 1% were considered negligible (indicated with ≈), indicating neither agreement nor disagreement with the predicted pattern. Differences equal to or greater than 1% and less than 5% were considered moderate (indicated with <≈ or >≈) and suggested moderate agreement or disagreement with the predicted pattern, as appropriate. Differences equal to or greater than 5% were deemed sizable (indicated with < or >), indicating strong agreement or disagreement with the predicted pattern, as appropriate.

Research question 4: "Effect of political orientation."

For individual coders, the sentiment values (Supplementary Table 8) show no differences between left and right for three coders, but there are small differences opposite to the expected pattern in the other two. In terms of membership in LL and HH areas (Supplementary Table 9) the individual data are inconsistent, with differences that are negligible or both moderately agree and moderately disagree with the expected patterns for quadrant membership.

We conclude that the individual data offer no support to the prediction that quotes from right-leaning papers tend to be more negative than those from left-leaning papaers. This chimes with the results from the aggregated data from all coders, as reported in the main paper (Tables 1, 2) and discussed in further detail in Section 5 of the current Supplementary materials.

Supplementary Table 8. Sentiment and political orientation.

Coder(s)	Sentiment Left	Sentiment Right	***Agreement with the predicted pattern for sentiment: Left > Right***
Coder 1	0.35	0.35	*Does not agree or disagree; Left ≈ Right.*
Coder 2	0.35	0.35	*Does not agree or disagree; Left ≈ Right.*
Coder 3	0.33	0.34	*Moderately disagrees; Left <≈ Right.*
Coder 4	0.36	0.36	*Does not agree or disagree; Left ≈ Right.*
Coder 5	0.35	0.38	*Moderately disagrees; Left <≈ Right.*
All Coders	0.35	0.35	*Does not agree or disagree; Left ≈ Right.*

[1]*Note:* Sentiment was computed as the root mean square (RMS) of warmth and competence judgements. The last row presents results from the aggregated data from all coders. The last column (in *italics*) assesses the agreement of the responses of all individual coders, as well as the aggregated data, with the predicted pattern for Research Question 4, i.e., that the overall sentiment should be higher in quotes from left-leaning than quotes from right-leaning papers. Differences in sentiment values between different categories of quotes less than 0.01 were considered negligible (indicated with ≈), suggesting neither agreement nor disagreement with the predicted pattern. Differences equal to or greater than 0.01 and less than 0.05 were considered moderate (indicated with <≈ or >≈) and taken to suggest moderate agreement or disagreement with the predicted pattern, as appropriate. Differences equal to or greater than 0.05 were deemed sizable (indicated with < or >) and interpreted to suggest strong agreement or disagreement, as appropriate.

Supplementary Table 9. Quadrant membership and political orientation.

Coder(s)	LL[1] Left	LL Right	*Agreement with the predicted pattern for LL: Left < Right*	HH[2] Left	HH Right	*Agreement with the predicted pattern for HH: Left > Right*
Coder 1	38.60	35.78	*Strongly disagrees; Left. < Right*	34.93	35.51	*Does not agree or disagree; Left ≈ Right*
Coder 2	70.11	64.81	*Strongly disagrees; Left. > Right*	18.08	17.39	*Does not agree or disagree; Left ≈ Right*
Coder 3	60.56	60.62	*Does not agree or disagree; Left ≈ Right*	10.80	9.50	*Moderately agrees; Left >≈ Right*
Coder 4	28.66	33.25	*Strongly agrees; Left. < Right*	50.61	49.16	*Moderately agrees; Left >≈ Right*
Coder 5	22.99	15.22	*Strongly disagrees; Left. > Right*	52.87	55.65	*Moderately disagrees; Left < Right*
All Coders	63.37	63.14	*Does not agree or disagree; Left ≈ Right*	16.12	14.17	*Moderately agrees; Left. >≈ Right*

[1] LL: low warmth and low competence.

[2] HH: high warmth and high competence.

[1]*Note*: The last row presents results from the aggregated data from all coders. The two columns in *italics*, following the percentages for LL (LL Left and LL Right) and for HH (HH Left and HH Right), assess agreement with the predicted pattern for Research Question 4, i.e., that the membership in the LL (HH) quadrant should be lower (higher) in left-leaning than in right-leaning papers. Differences in percentages for LL or HH between different categories of quotes less than 1% were considered negligible (indicated with ≈), indicating neither agreement nor disagreement with the predicted pattern. Differences equal to or greater than 1% and less than 5% were considered moderate (indicated with <≈ or >≈) and suggested moderate agreement or disagreement with the predicted pattern, as appropriate. Differences equal to or greater than 5% were deemed sizable (indicated with < or >), indicating strong agreement or disagreement with the predicted pattern, as appropriate.

Research question 5: "Effect of time".

For the majority of coders and measures, we observe a pattern where the sentiment (Supplementary Table 10) is low in the early corpus, higher in the middle, and lower in the late time period. In terms of quadrant membership (Supplementary Table 11), for three individual coders, the membership in LL and HH areas and the sentiment value are partially or fully consistent with the expected pattern (LL-Early > LL-Middle > LL-Late or/and HH-Early < HH-Middle < HH-Late). However, the individual data present a mixed agreement pattern parallel to that found for the sentiment measure. Overall, the individual data present the same pattern observed in the main analysis (reported in the main paper in Tables 1, and 2 and discussed in further detail in Section 5 of the current Supplementary materials), which we take to suggest some inconsistent changes over time.

Supplementary Table 10. Sentiment and publication time.

Coder(s)	Sentiment Early	Sentiment Middle	Sentiment Late	***Agreement with the predicted pattern: Early < Middle < Late***
Coder 1	0.34	0.37	0.34	*Mixed. Moderately agrees; Early <≈ Middle. Moderately disagrees; Middle >≈ Late.*
Coder 2	0.34	0.37	0.34	*Mixed. Moderately agrees; Early <≈ Middle. Moderately disagrees; Middle >≈ Late.*
Coder 3	0.32	0.35	0.33	*Mixed. Moderately agrees; Early <≈ Middle. Moderately disagrees; Middle >≈ Late.*
Coder 4	0.36	0.37	0.36	*Mixed. Moderately agrees; Early <≈ Middle. Moderately disagrees; Middle >≈ Late.*
Coder 5	0.37	0.37	0.38	*Mixed. Does not agree or disagree; Early ≈ Middle. Moderately disagrees; Middle >≈ Late.*
All Coders	0.34	0.37	0.34	*Mixed. Moderately agrees; Early <≈ Middle. Moderately disagrees; Middle >≈ Late.*

[1]*Note:* The last row refers to aggregated data from all coders. The sentiment was computed as the root mean square (RMS) of warmth and competence judgements. The last column (in *italics*) assesses the agreement of the responses of all individual coders, as well as the aggregated data, with the predicted pattern for Research Question 5, i.e., that the overall sentiment should become more positive over time. Differences in sentiment values between different categories of quotes less than 0.01 were considered negligible (indicated with ≈), suggesting neither agreement nor disagreement with the predicted pattern. Differences equal to or greater than 0.01 and less than 0.05 were considered moderate (indicated with <≈ or >≈) and taken to suggest moderate agreement or disagreement with the predicted pattern, as appropriate. Differences equal to or greater than 0.05 were deemed sizable (indicated with < or >) and interpreted to suggest strong agreement or disagreement, as appropriate.

Supplementary Table 11. Quadrant membership and publication time.

Coder(s)	LL[1] Early	LL Middle	LL Late	*Agreement with the predicted pattern for LL: Early > Middle > Late*	HH[2] Early	HH Middle	HH Late	*Agreement with the predicted pattern for HH: Early < Middle < Late*
Coder 1	38.73	36.67	34.96	*Moderately agrees; Early >≈ Middle >≈ Late.*	35.56	39.00	32.52	*Mixed. Moderately agrees; Early <≈ Middle. Strongly disagrees; Middle > Late.*
Coder 2	66.31	62.42	69.02	*Mixed. Moderately agrees; Early >≈ Middle. Strongly disagrees; Middle < Late.*	15.96	21.81	15.61	*Mixed. Strongly agrees; Early < Middle. Strongly disagrees; Middle > Late.*
Coder 3	69.02	60.52	58.97	*Strongly/moderately agrees; Early > Middle >≈ Late*	8.26	12.88	8.81	*Mixed. Moderately agrees; Early <≈ Middle. Moderately disagrees; Middle >≈ Late.*
Coder 4	32.10	35.23	29.46	*Mixed. Moderately disagrees; Early <≈ Middle. Strongly agrees; Middle > Late.*	48.15	48.30	51.45	*Mixed. Does not agree or disagree; Early ≈ Middle. Moderately agrees; Middle > Late.*
Coder 5	22.58	20.19	10.83	*Moderately/strongly agrees; Early >≈ Middle > Late*	51.61	52.88	59.17	*Moderately/strongly agrees; Early <≈ Middle < Late*
All Coders	65.96	59.47	64.01	*Mixed. Strongly agrees; Early > Middle. Moderately disagrees; Middle <≈ Late.*	12.63	19.27	12.80	*Mixed. Strongly agrees; Early < Middle. Strongly disagrees; Middle > Late.*

[1] LL: low warmth and low competence.

[2] HH: high warmth and high competence.

[1]*Note:* The last row presents results from the aggregated data from all coders. The two columns in *italics,* following the percentages for the LL (LL Early, LL Middle, LL Recent) and HH (HH Early, HH Middle, HH Recent) quadrants, assess agreement with the predicted patterns for Research Question 5, i.e., that the membership in the LL (HH) quadrant should decrease (increase) over time. Differences in percentages for LL or HH between different categories of quotes less than 1% were considered negligible (indicated with ≈), indicating neither agreement nor disagreement with the predicted pattern. Differences equal to or greater than 1% and less than 5% were considered moderate (indicated with <≈ or >≈) and suggested moderate agreement or disagreement with the predicted pattern, as appropriate. Differences equal to or greater than 5% were deemed sizable (indicated with < or >), indicating strong agreement or disagreement with the predicted pattern, as appropriate.

Conclusion from the analysis of individual data.

Our overall conclusion from the individual analysis is that the two strongest findings of the main analysis, “overall negative sentiment” and “differences related to term and language”, are supported by the analysis at an individual level. This suggests that the main findings of this study do not depend on the moderate level of agreement between coders.

References

1. Karaminis T, Gabrielatos C, Maden-Weinberger U, Beattie G. Portrayals of autism in the British press: A corpus-based study. *Autism.* 2023;27(4):1092-1114. doi:10.1177/13623613221131752