Gender and ethnicity intersect to reduce participation at a large European hybrid HIV conference

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ABSTRACT

Objective To evaluate how gender and ethnicity of panel members intersect to effect audience participation at a large European hybrid conference.

Design An observational cross-sectional study design was used to collect data at the conference and descriptive survey was used to collect data retrospectively from the participants.

Setting European AIDS Clinical Society 18th Conference; a 3223-delegate, hybrid conference held online and in London over 4 days in October 2021.

Main outcome measures We observed the number and type of questions asked at 12 of 69 sessions and described characteristics of the panel composition by ethnicity, gender and seniority. A postconference survey of conference attendees collated demographic information, number of questions asked during the conference and the reasons for not asking questions.

Results Men asked the most questions and were more likely to ask multiple questions in the observed sessions (61.5%). People from white ethnic groups asked >95% of the questions in the observed sessions. The fewest questions were asked in the sessions with the least diverse panels in terms of both ethnicity and gender. Barriers to asking questions differed between genders and ethnicities.

Conclusions Our study aims to provide evidence to help conference organisers improve leadership, equality, diversity and inclusion in the professional medical conference setting. This will support equitable dissemination of knowledge and improve education and engagement of delegates. To our knowledge, this is the first study describing conference participation by both ethnicity and gender in panellists and delegates within a hybrid conference setting.

INTRODUCTION

The negative effect of female gender identity on participation at face-to-face academic conferences for delegates, speakers, chairs and panellists has previously been reported. A narrative review of the literature showed that little is known about how ethnicity may affect conference participation, or about how gender and ethnicity intersect.

Participating in academic conferences is integral to academic life and offers opportunities for education, knowledge dissemination, shared learning, visibility, collaboration and networking.[1]

Since the pandemic, some international conferences have been delivered as online or 'hybrid' (online and in-person) meetings. This has expanded opportunities to attend for those who may otherwise have been excluded by barriers such as caring duties or visa requirements.[2 3] Wu et al demonstrated that attendance at online meetings was higher than at face-to-face meetings with a higher representation of black and Hispanic delegates from low and middle-income countries.[4] Our literature search found seven papers that looked at the hybrid format of conferences. However, the majority (n=6, 86%) were looking at the acceptability of the hybrid format.[5–11] They all found the hybrid format to be more acceptable than an online format but

WHAT IS ALREADY KNOWN ON THIS TOPIC
⇒ There is a gender imbalance at face-to-face academic conferences with respect to speakers, chairs and panellists. Studies have shown that men ask more questions at conferences and barriers exist for women such as men asking the first question and 'not being able to work up the nerve'.
⇒ Very little has been published about ethnic disparities at academic medical conferences and even less about the intersection of gender, ethnicity and access at hybrid conferences.

WHAT THIS STUDY ADDS
⇒ Our quantitative data show that when the panel is more diverse with respect to gender and ethnicity, then audience participation is higher.
⇒ Our qualitative data show that barriers exist, inhibiting women and men asking questions. Women are more worried about asking a stupid question, feel shy or have a lack of confidence. Men are more worried about appearing arrogant.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY
⇒ This study highlights the need for improved equality, diversity and inclusion (EDI) for conference organisers. Conference organisers should consider reviewing their EDI policies on the basis of our findings.
⇒ By understanding that by increasing diversity on the panel, this will improve opportunities for marginalised groups and will improve conference participation from the audience, as such, improving education and equity of knowledge sharing.

that the in-person format was preferred. Only one of the studies[5] looked at gender and found that the majority of participants and speakers were male. However, only 10% attended virtually and there was no analysis by gender or ethnicity of that 10%. None of the papers analysed ethnicity in the hybrid conference format.

In terms of the effects of gender, a greater prominence of male versus female academic speakers and chairs at medical conferences has been reported globally and across many specialities.[12–14] With respect to participation at conferences, assessing questions asked is a helpful proxy. One study showed that when men ask the first question, women ask proportionately fewer subsequent questions and 'internal factors' such as '*not being able to work up the nerve*' were cited by women as barriers to asking questions.[15] Studies in science and medicine have shown that, even in a gender-balanced room, men ask up to 80% more questions than women.[14 16 17] However, these papers did not evaluate the added effects of ethnicity on participation.

We found one study that evaluated the ethnicity of speakers at medical conferences.[18] They found that across 20 UK-based conferences, only 10% achieved an equal balance of speakers from white ethnic groups versus those from any other ethnic groups. At two conferences, all speakers were from white ethnic groups.[18]

In this study, we aim to analyse and evaluate how the gender and ethnicity of panel members intersect to effect audience participation at a large European hybrid conference. We aim to assess whether the hybrid format is a more inclusive and accessible environment, leading to greater participation from minoritised groups.

METHODS

We used a mixed-methods approach consisting of a quantitative cross-sectional descriptive analysis of observed panel composition and audience member participation and a descriptive postconference survey of European AIDS Clinical Society (EACS) 2021 participants. The research was cocreated by researchers at Queen Mary University, the president and senior officers of the EACS and members of the Medical Women's Federation.

Observed conference participation

The 18th European AIDS Conference was an international HIV conference held in London, UK, over 4 days in October 2021 with 3223 delegates and 69 sessions. This included plenary sessions, ceremonies, e-poster sessions, scientific presentations, meet the expert and workshops. Of the 69 sessions, only 15 (21.7%) had a question and answer (Q&A) session planned. With the collaboration of conference organisers, researcher (AH) was facilitated to observe 12 of the 15 (80%) sessions (hybrid and online). We chose a range of session types including workshops, research abstract presentations and parallel sessions. All observed sessions included time for questions and discussion, providing opportunity to assess participation. A prestructured observation tool (online supplemental material S1) was used to gather data on panel and audience characteristics such as observed gender (we summarise here as male, female, unknown/other), observed ethnicity (we summarise into five broad ethnicity categories white, black, Asian, mixed and other ethnic group based on the England and Wales 2021 Census classification),[19] country of work (UK, Europe, outside the European Union (EU), unknown/other) and level of career seniority. Information on observed gender and ethnicity was determined in three ways: reviewing the conference programme, online searches (Google) and direct observation. Limitations of this approach are discussed further

on in the paper. Descriptive statistics are presented as n (%). All data were collected using Microsoft Excel (2021) and analyses were performed using R V.4.0.2 (R Core Team 2020).

Postconference survey

EACS secretariat staff emailed delegates 1 month after the conference inviting them to complete an anonymous online survey. The survey collected data on age, self-reported gender, self-identified ethnicity, English proficiency, seniority and preferences for on-site or virtual or hybrid meetings. We asked participants to self-identify by choosing from five options describing ethnicity derived from the England and Wales Census (white, black or black British, Caribbean or African, Asian or Asian British, mixed or multiple ethnic groups and/or other ethnic group).[19] For the sake of clarity in reporting, we once again use the broad ethnicity groupings black, white, Asian, mixed or other. The survey was open for 28 days and collected data on number of questions asked and reasons for not asking questions. Survey questions and conduct are described in online supplemental material S2. The QMUL Jisc online survey software was used.

RESULTS

Conference participation

Of 3223 attendees, 154 (4.8%) were faculty (speakers, chairs and panellists), 2294 (71.2%) attended online and 929 (28.8%) were on-site. The majority of delegates were from the UK and EU (67%), 12% from North America, 11% from Russia, 8% from South America and the remainder (1.2%) were from Africa and Australasia. The majority (89%) of the on-site delegates were from the EU and UK. Delegate numbers in 2019 were similar to 2021; 3145 vs 3223, respectively.

There were a total of 69 sessions over 4 days of varying formats. From the 15 sessions that had a Q&A segment, we observed 12. Of these, five were hybrid and seven were online only. We chose these at random from the 15 sessions that included Q&A sessions. The sessions attended are detailed in online supplemental materials S3 and S4.

Characteristics and composition of panel members by gender and ethnicity are shown in table 1 and figure 1, respectively. There were 82 panel members, of whom 53.7% were female. Broken down by observed ethnicities, the researcher classified 72 (87.8%) as white, 4 (4.9%) as black and 6 (7.3%) as Asian. The majority (94%) of panellists came from the EU and the UK. The seniority of panellists is described in table 1.

Across 12 sessions, 63 individuals (18 panel and 45 audience members) asked a total of 130 questions. A total of 44 (33.8%) questions were asked by the speaker/panel/chairs. This averages to 2.4 questions for every panel member that asked a question. Observed demographic characteristics of people who asked a question in any session are shown in table 2. Men accounted for 57% of the people asking questions (n=36) and those observed as white asked 88.9% (n=56) of the questions, where observed ethnicity was assigned. Twenty-seven people asked more than one question and all (excluding one questioner with unknown characteristics) were observed as white and 16 (61.5%) were male. Seven people asked five or more questions accounting for 30.8% of all questions asked, five were male and all were observed as white. When focusing on just the 45 audience members that asked questions, when removing questions asked by unknown gender, a total of 78 (60%) questions were asked. Fifty (64%) of the questions were asked by male audience members and 28 (36%) questions were asked by female audience

Table 1 Characteristics of panel members by gender and observed ethnicity

Panel member	Female	Male	Panel member	White	Black	Asian
n	44	38	n	72	4	6
Session type online	29 (65.9)	27 (71.1)	Session type online	48 (66.7)	3 (75.0)	5 (83.3)
Access in person	12 (27.3)	7 (18.4)	Access in person	17 (23.6)	1 (25.0)	1 (16.7)
Gender female	–	–	Gender female	37 (51.4)	2 (50.0)	5 (83.3)
Ethnicity			Ethnicity			
White	37 (84.1)	35 (92.1)	White	–	–	–
Black	2 (4.5)	2 (5.3)	Black	–	–	–
Asian	5 (11.4)	1 (2.6)	Asian	–	–	–
Country			Country			
UK	19 (43.2)	8 (21.1)	UK	22 (30.6)	2 (50.0)	3 (50.0)
Europe	20 (45.5)	28 (73.7)	Europe	45 (62.5)	2 (50.0)	1 (16.7)
Outside EU	5 (11.4)	2 (5.3)	Outside EU	5 (6.9)	0 (0.0)	2 (33.3)
Seniority			Seniority			
Professor	12 (27.3)	7 (18.4)	Professor	19 (26.4)	0 (0.0)	0 (0.0)
Doctor/senior academic	19 (43.2)	22 (57.9)	Doctor/senior academic	37 (51.4)	2 (50.0)	2 (33.3)
Scientist/AHP/PhD student	12 (27.3)	5 (13.2)	Scientist/AHP/PhD student	12 (16.7)	1 (25.0)	4 (66.7)
Non-medical professional	1 (2.3)	2 (5.3)	Non-medical professional	2 (2.8)	1 (25.0)	0 (0.0)
Unknown/other	0 (0.0)	2 (5.3)	Unknown/other	2 (2.8)	0 (0.0)	0 (0.0)

Data presented as n (%).
AHP, Allied Health Professionals; EU, European Union.

members. Proportionally, 50 of the 79 (63.3%) questions asked by males were asked by audience members, compared with 28 of the 51 (55%) questions asked by females. The remaining were asked by panel members.

The majority of the questions (n=84, 64.6%) were asked during the purely online sessions and by men (n=78, 60.4%, excluding one unknown). Delegates observed as white asked 98% (n=123) of the questions (excluding four unknowns). The relationship between the number of questions asked and the panel composition categorised by gender and observed ethnicity are shown in online supplemental materials S5–S9 and figure 2. Figure 2 shows the total number and type of question asked by either audience members or panel members, depending on the make-up of the panel. For example, at the all-male, all-white panel, five questions were asked. At the mixed gender, all-white panels, an average of 12 questions were asked and at the mixed gender, mixed ethnicity panel, an average of 14 questions were asked. By gender, the proportion of questions asked by females increased when the panel was mixed gender and ethnicity. When the panel was all white, all male, no one who was observed to be black or Asian asked a question, but a small proportion of questions were asked by audience or panel members observed to be black or Asian at the panels that were more diverse in terms of gender and ethnicity. Of the 12 sessions observed, seven of the panels were, by gender, majority (50% or more) female, four majority male and one all male; and by observed ethnicity six were majority white and six all white. Mixed ethnicity panels comprised 10–30% panel members from black and Asian ethnicities. There was one all-white, all-male panel (figure 2).

Postconference survey

The survey completion rate was 17% (n=556/3223). Three-hundred and four (55%) identified as female, 227 (41%) identified as male, 7 (1%) as non-binary or 'other' and 18 (3%) preferred not to say. By ethnicity, 408 self-identified as white (74.7%), 36 (6.6%) as Asian, 21 (3.8%) as black, 38 (7%) as mixed and 43 (7.9%) identified as 'other'. Almost 80% (n=419) of respondents were senior doctors or academics. By ethnicity,

the majority of senior doctors or academics identified as white (n=314, 75%), 37 (8.8%) identified as 'other' ethnicity, 28 (6.7%) identified as 'mixed' ethnicity, 27 identified as Asian and only 9 (2.1%) identified as black. Of these nine, they were all trainee or consultant grade, none were professors or senior academics. As a proportion of total responders by ethnicity, 77% of those who identify as white, 75% of those who identify as Asian, 74% of those who identify as mixed ethnicity, 65% of those who identify as 'other ethnicity' and 33% of those who identify as black were senior.

Proportionally, more men reported that they asked a question at EACS compared with women (39.2% vs 34.9%). Of those who responded to the survey, 60% of males had been to 21 or more previous conferences, whereas only 42.8% of females had been to 21 or more conferences. Responders who identified as white had been to the most conferences, compared with all other ethnicities, with 54% of responders that identify as white having been to more than 21 conferences, compared with the just 19% of those who identify as black, 47.4% of those who identify as mixed ethnicity, 48.8% of those who identify as 'other' ethnicity and 39% of those who identify as Asian (online supplemental material S10). Women preferred hybrid or online events compared with men (32% vs 26%). Males preferred to use the microphone, rather than the online chat, compared with females (16.7% vs 7.9%), and people who identify as black also showed preference for the microphone compared with all other ethnicities (28.6% compared with 12.5% of white, 8.3% of Asian, 2.6% of mixed ethnicity and 14% of 'other ethnicity' responders) (online supplemental material S10). By ethnicity, four people reported asking more than 10 questions, all of whom self-identified as white.

The reasons for not asking questions differed by both gender and ethnicity (online supplemental material S11). More women reported being worried about asking a stupid question (n=63, 12.6% vs n=27, 8.1%), were more likely to feel shy or embarrassed (n=60, 12.1% vs n=24, 7.3%) or had a lack of confidence in their knowledge (n=36, 7.2% vs n=16, 4.8%) compared with men. More men, compared with women, cited not asking
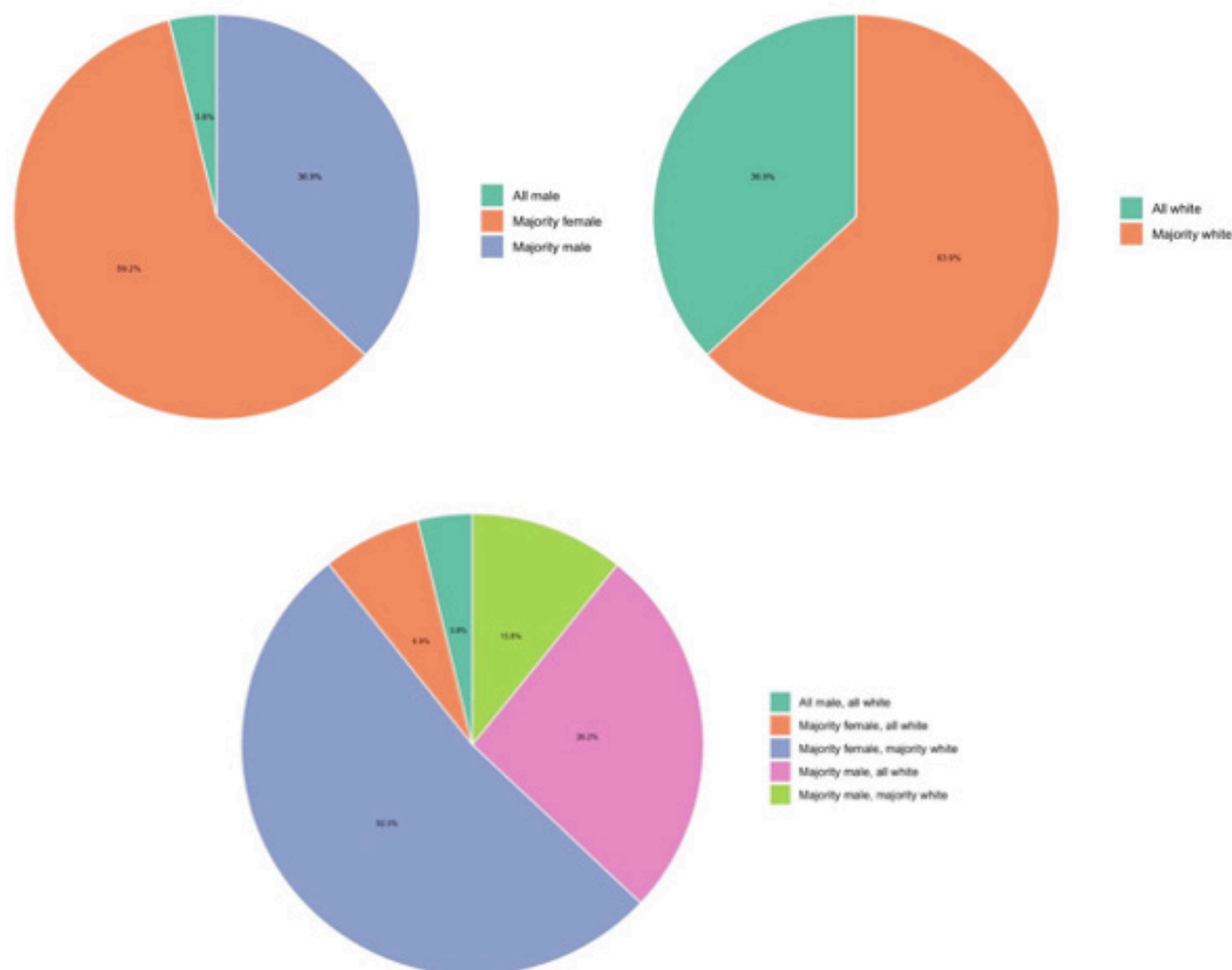
Figure 1 Session panel composition by gender and ethnicity. Total 12 sessions. EU, European Union.

a question because they did not want to appear arrogant or critical (n=20, 6% vs n=8, 1.6%). There were 10 (1.8%) people who reported that a previous bad experience or rejection was a barrier to asking a question. Of these, seven (70%) were female.

DISCUSSION

This study is the first to describe both gender and ethnicity in panel composition, and the first to explore intersections between gender and ethnicity on number and types of questions asked at a large international hybrid meeting. Our literature review has shown that some work has been done to look at the acceptability of hybrid conferences but no work has been done to look at the effect of gender and ethnicity on the audience.

Our research has shown that there are differences in participation by both gender and ethnicity and that this might be related to the composition of the panel. However, we could not determine any causal relationship between the hybrid format and participation, other than most questions were asked using the online chat and the majority of both males and females stated that they preferred to use the online chat compared with the microphone but preferred an in-person conference compared with hybrid.

We were unable to find out the total gender split of the entire audience, but with 556 survey respondents, we were able to use this as a sample of attendees at the conference. With a 55% female to 41% male split in respondents, we still saw that men asked proportionally more questions which concurred with previous studies; that women asked fewer questions than men, even in a gender-balanced room.[16] We observed that, although women represented 53.7% of the panellists, questions from men still outnumbered questions from women (57.6% vs 42.4%). Our survey results are really important in understanding the reasons behind women not asking questions, even to a majority female panel. Like Salem *et al*, we found that a significant proportion (45%) of the questions asked by women were asked by chairs/panellists.[17] This may be due to women's concerns about their authority being doubted due to experiences of testimonial injustice and stereotypes about their gender.[20 21] For men, the proportion of overall questions asked by the male panel members compared with the audience was lower at 23.5%. This may be that these women who have already been chosen to speak may feel that they are viewed as credible sources of information. We showed that a gender-balanced panel alone is not enough to reach gender parity in the number of questions asked.

Table 2 Characteristics of audience members who asked questions

Audience member	Female	Male	Audience member	White	Black	Asian
n	25	34	n	56	1	2
Session type online	13 (52.0)	23 (67.6)	Session type online	35 (63.5)	0 (0.0)	1 (50.5)
Mode			Mode			
Microphone	3 (12.0)	2 (5.9)	Microphone	5 (8.9)	0 (0.0)	0 (0.0)
Chat	12 (48.0)	24 (70.6)	Chat	33 (58.9)	1 (100.0)	2 (100.0)
Chair/panel member	10 (40.0)	8 (23.5)	Chair/panel member	18 (32.1)	0 (0.0)	0 (0.0)
Gender female	–	–	Gender female	24 (42.9)	1 (100.0)	0 (0.0)
Ethnicity			Ethnicity			
White	24 (96.0)	32 (94.1)	White	–	–	–
Black	1 (4.0)	0 (0.0)	Black	–	–	–
Asian	0 (0.0)	2 (5.9)	Asian	–	–	–
Country			Country			
UK	0 (0.0)	1 (2.9)	UK	1 (1.8)	0 (0.0)	0 (0.0)
Europe	10 (40.0)	12 (35.3)	Europe	19 (33.9)	1 (100.0)	2 (100.0)
Outside EU	14 (56.0)	20 (58.8)	Outside EU	34 (60.7)	0 (0.0)	0 (0.0)
Unknown	1 (4.0)	1 (2.9)	Unknown	2 (3.6)	0 (0.0)	0 (0.0)
Seniority			Seniority			
Professor	9 (36.0)	5 (14.7)	Professor	14 (25.0)	0 (0.0)	0 (0.0)
Doctor/senior academic	13 (52.0)	20 (58.8)	Doctor/senior academic	30 (53.6)	1 (100.0)	2 (100.0)
Scientist/AHP/PhD student	0 (0.0)	3 (8.8)	Scientist/AHP/PhD student	3 (5.4)	0 (0.0)	0 (0.0)
Non-medical professional	1 (4.0)	4 (11.8)	Non-medical professional	5 (8.9)	0 (0.0)	0 (0.0)
Unknown/other	2 (8.0)	2 (5.9)	Unknown/other	4 (7.1)	0 (0.0)	0 (0.0)

Data presented as n (%). Excluding unknown gender (n=1) and unknown observed ethnicity (n=4).
AHP, Allied Health Professionals; EU, European Union.

Concerning ethnicity, people who were observed as white asked 98% of the questions. Out of 51 questions asked by female delegates, only one was asked by an ethnically diverse woman. In the limited amount of sessions observed, the ethnic diversity of the panel appeared to be an important influencer of number of questions asked per session and of who asked the questions. Even though panels were roughly gender balanced, 87.8% of panellists were observed as being white. Six panels were observed to be majority white and six were entirely white ('all-White'). Although the overall number of questions asked by people from ethnically diverse groups was very small, we found that the fewest questions were asked in the all-white panels compared with the more ethnically diverse panels. Fewer questions were asked by women in the all-white panels regardless of
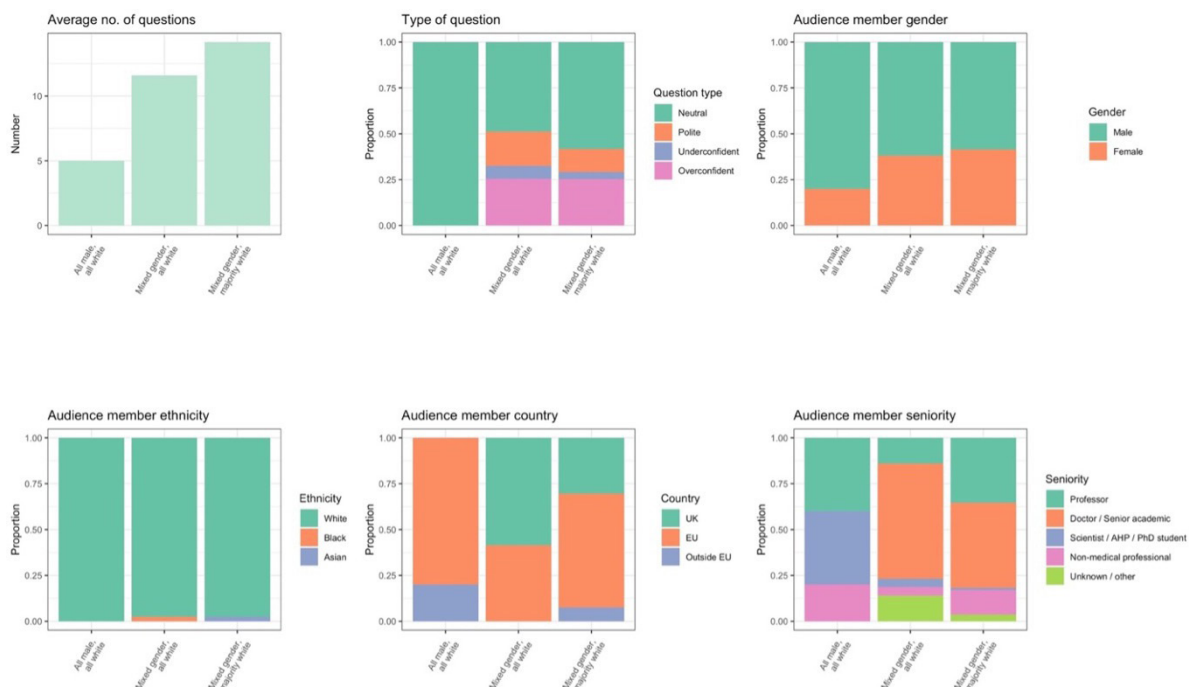

Figure 2 Relationship between panel composition by observed gender and observed ethnicity and number and type of questions asked by delegates. Total 12 sessions: 1 all male all white, 5 mixed gender all white, 6 mixed gender majority white. EU, European Union; AHP, Allied Health Professionals.

the gender balance (figure 2). There was one all-white, all-male panel. During this session, the fewest questions were asked (5 vs an average of >10). Four of the five questions were from panel members and the fifth was asked by a woman online and not answered. In summary, when there is both gender and ethnic diversity on the panel more questions were asked and women participated more. Although a causal relationship cannot be gleaned, our findings suggest that having more diversity on panels at conferences might lead to increased participation from females and ethnic minorities in the audience.

Black survey respondents and women had been to fewer conferences. Women have a higher preference for hybrid or online format and have a lower preference for asking questions at the microphone, compared with men. This might be explained by the notion that women and ethnic minorities are disproportionally affected by childcare and caring responsibilities, and barriers such as visa requirements, affecting their ability to attend educational opportunities such as conferences.[2–4] Concerning the hybrid format and the relationship between increased access and participation, our survey suggests that the former does not necessarily imply the latter as internal factors still exist for women such as being worried about asking a silly question or feeling embarrassed to ask questions. Respondents also reported that time zone differences and language barriers made it difficult to participate.

Limitations of this research

We recognise that the main researcher (AH) is a white cis-woman working in the UK and this may have influenced her observations.

We did not have access to the total number of attendees by gender and ethnicity (the conference organisers do not collect such data), nor did we have these figures for the sessions we observed, so we were unable to relate the number of questions asked to the proportions of attendees. However, the female predominance in both the panels and in the survey results suggests that the conference had a balanced gender split. We have shown that regardless of the denominator, panel composition appears to be an important influencer on audience participation, with reduced panel diversity leading to fewer questions and reduced participation. The determination of the ethnicity, gender and seniority of the speakers and participants was based on the observation of the researcher (AH) and corroborated by Google searches and the conference programme, which may have led to inaccuracies or misrepresentation. However, the patterns we observed during the sessions were corroborated by the survey findings where ethnicity and gender were self-identified by respondents.

We only observed 12 sessions, which is a relatively low number. However, as a proportion of the sessions that had a Q&A session, this was 80%. It would be useful to observe more sessions in a variety of conferences, both hybrid, online and in person, to compare the results.

We presented the data on ethnicity as five broad ethnic groupings. We are aware that such reduction does not allow for a fully comprehensive understanding of the definition and role of ethnicity. However, we chose this way of presenting our data in order to show intersections with gender and other categories in our analysis in intelligible ways.

We also do not know what portion of EACS members or health care proessionals (HCPs) working in HIV medicine (and related fields) are from racially minoritised groups, and whether the proportion who participated in this conference is representative of this, as no such data exist.

The survey was only available in English which may have limited participation and it was open for a limited period (28 days). We did not provide an option for participants to indicate that they had watched the session on demand after the event had happened which was an omission and may have skewed the numbers of those who did not ask questions especially in people from different time zones.

CONCLUSIONS

Equity of access and participation at medical conferences is an important component of achieving parity of experience, education and professional development for women and minoritised groups. Our aim is to provide the first intersectional approach to ethnicity and gender in a hybrid medical conference. Ethnicity needs to be considered alongside gender, as intersectionality is a defining feature of inequality and identity categories are best not considered in a vacuum. Based on our findings which suggest that gender-balanced and ethnically diverse panels fostered greater engagement, we recommend that conference organisers actively strive to go beyond gender and embrace true diversity and inclusivity. Future research and interventions should evaluate and consider other structural barriers such as ability and other social identities. We recommend that conferences collect and publish diversity data at their conferences and that panellists are specifically briefed to ensure that they select questions from a diverse group of delegates.

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Supplementary Material

Supplement S1. Pre-structured observation tool used to gather information during the observed sessions.

Session Title:
Session Type:

	Online/ in person	Gender	Ethnicity	Country	Profession
Speakers					
Chairs					

Questions	Mode (chat/ microphone)	Gender	Ethnicity	Country	Job	Answered? Yes/ no
1						
2						
3						
4						
5						
6						
7						
8						
9						

Supplemental material

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Supplement S2. Questions included in the post-conference survey

Q1. Age
- 18-25
- 26-30
- 31-34
- 35-40
- 41-50
- 51-60
- 60+

Q2. Gender
- Cis-Female (assigned female at birth and identify as female)
- Cis-Male (assigned male at birth and identify as male)
- Transfemale
- Transmale Non-binary / nonconforming
- Other
- Prefer not to say

Q3. Country of Residence
- White UK/White European/White Other
- Mixed or Multiple Ethnic Group
- Asian/ Asian British/ Asian Other
- Black African/ Black Caribbean/ Black British/Black Other
- Other Ethnic Group

Q4. Current role (tick all that apply)
- Allied Health Professional (nurse, physio, dietician, psychologist, health advisor)
- Medical Student
- Doctor in Training (non infectious disease trainee)
- Academic Trainee
- Infectious Disease/ GU Trainee
- Infectious Disease / GU Consultant
- Other Consultant (non ID)
- GP / Family Doctor / Primary Care Physician
- Senior Academic / Professor
- Social Scientist / Researcher
- Community Member

Q5. How would you describe your area of focus? (Tick all that apply)
- Clinical
- Epidemiology
- Public Health
- Social Science
- Basic Science
- Personal

Q6. Is English your first language?

- Yes
- No

If no, do you consider yourself fluent in English?

Q7. How many conferences have you attended in your career?
- 1-5
- 6-10
- 11-20
- 21+

Q8. Do you prefer to attend a conference virtually or in person?
- Virtually
- In person
- Hybrid
- Don't mind

Q9. How do you prefer to ask a question at a conference?
- In the app / online platform
- At the microphone / in person
- Combination of both
- I prefer not to ask questions

Q10. How many questions did you ask at EACS 2021 in total, via the microphone, the app or live chat? (approximately if you cannot recall)
- 0
- 1-3
- 4-6
- 7-9
- 10+

Q11. How did you ask your questions?
- N/A - I did not ask a question
- Online
- In person/ at the microphone
- Mixture of both

Q12. If you asked a question online, did you post using your name or anonymously?

Q13. How many of your questions were picked or answered in total?
- 1
- 2
- 3
- 4
- 5
- 6+
- N/A

Q14. If you did not ask a question, or asked less than 4, why? Select all that apply.
- Not applicable - I asked 4 or more questions
- I had nothing to ask
- I was worried about asking a stupid question
- I have had previous rejection or bad experience when asking a question
- I felt too junior
- I felt too senior
- I felt embarrassed / shy / nervous when public speaking
- I found the panel/speaker/chair intimidating
- I found the audience intimidating
- I didn't want to appear arrogant or critical of the speaker
- Lack of confidence in my knowledge
- Lack of confidence in the English language
- There wasn't enough time
- My boss was in the audience

Q15. Do you have any further comments about asking questions at conferences?

Supplement S3. Sessions attended at EACS by session type, the breakdown of male vs female panel members, the number of questions asked at each session and by whom, in relation to gender. Data presented as n (%).

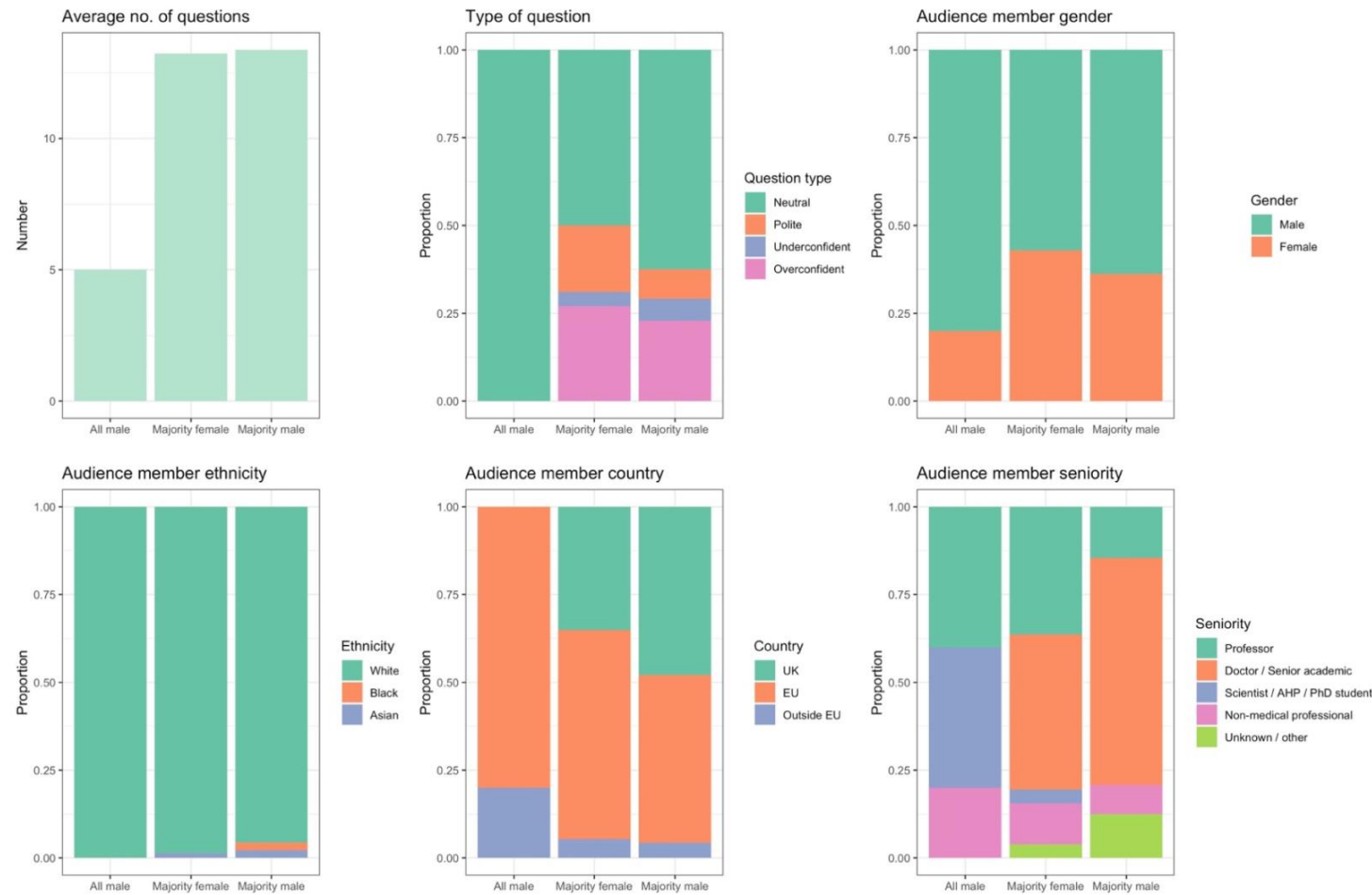|	Session Name	Session Type	Male panel	Female panel	Questions asked	Questions male	Questions female	% chair	Panel Majority	Questions majority
1	Educational - dermatology	Educational	2 (50%)	2 (50)	5	4 (80)	1 (20)	0%	50/50	male
2	Individualized Choices in Antiretroviral Therapy: Present and Future	Industry sponsored	1 (33.3)	2 (66.6)	2	1 (50)	1 (50)	0%	female	50/50
3	Oral Abstract Session 1 - Epidemiology	Oral abstracts	2 (33.3)	4 (66.6)	7	4 (57)	3 (43)	14%	female	male
4	Best Posters 2 - Social Sciences & Prevention	Poster	4 (40)	6 (60)	12	4 (33.3)	8 (66.6)	50%	female	female
5	Updates in PrEP implementation and regimens	parallel	3 (60)	2 (40)	14	8 (57)	6 (43)	14%	male	male
6	Oral Abstract Session 2 - Current issues in ART	Oral abstracts	4 (57)	3 (43)	15	10 (66.6)	5 (33.3)	26.60%	male	male
7	BHIVA Symposium - Improving Outcomes for People living with HIV	Industry sponsored	2 (33.3)	4 (66.6)	9	3 (33.3)	6 (66.6)	44.40%	female	female
8	Oral Abstract Session 3 - Comorbidities and Co-infections	Oral abstracts	3 (43)	4 (57)	17	12 (70.6)	5 (29.4)	29.40%	female	male
9	Best Posters 4 - Basic Science & HIV Cure	Poster	1 (11.1)	8 (88.9)	14	8 (57)	6 (43)	71.40%	female	male
10	Oral Abstract Session 4 - COVID19	Oral abstracts	7 (100)	0 (0)	5	4 (80)	1 (20)	80%	male	male
11	Best Posters 3 - Co-morbidities & Co-infections	Poster	6 (60)	4 (40)	14	9 (64)	5 (36)	28.50%	male	male
12	ACT NOW: Long-acting drugs against HIV	parallel	3 (37.5)	5 (62.5)	16	12 (75)	4 (25)	18.75%	female	male

Supplement S4. Sessions attended at EACS by session type, the breakdown of white vs other ethnicity panel members, the number of questions asked at each session and by whom, in relation to ethnicity. Data presented as n (%).

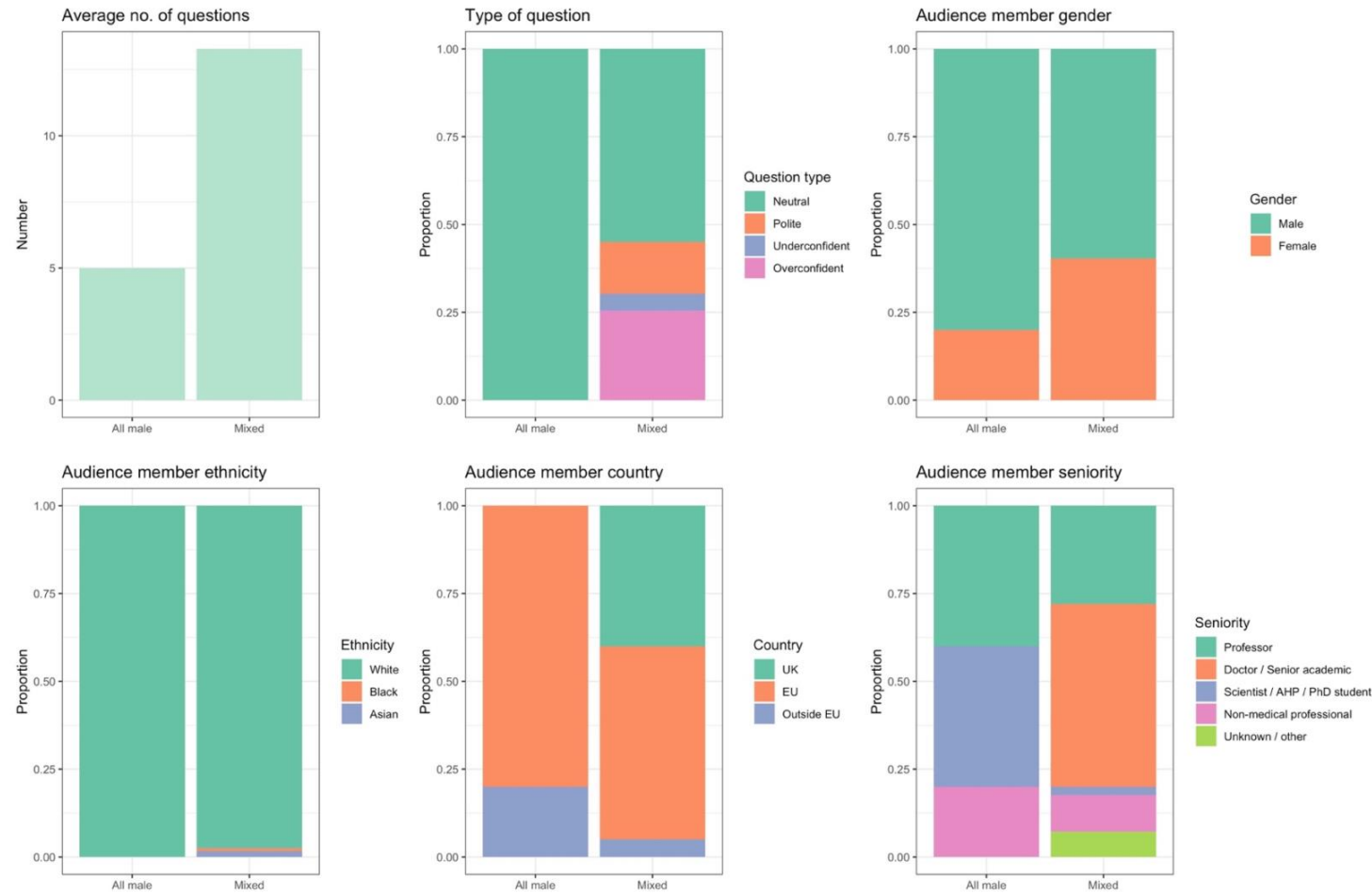|	Session Name	Session Type	White panel	Other ethnicity panel	Questions asked	Questions white	Questions other ethnicity	% chair	panel % white	Questions majority gender	Q asked by other ethnicity
1	Educational - dermatology	Educational	4 (100)	0 (0)	5	4(80)	1(20)	0%	100%	male	20%
2	Individualized Choices in Antiretroviral Therapy: Present and Future	Industry sponsored	3 (100)	0 (0)	2	2(100)	0(0)	0%	100%	50/50	0%
3	Oral Abstract Session 1 - Epidemiology	Oral abstracts	6 (100)	0 (0)	7	7(100)	0(0)	14%	100%	male	0%
4	Best Posters 2 - Social Sciences & Prevention	Poster	7 (70)	3 (30)	12	12(100)	0(0)	50%	70%	female	0%
5	Updates in PrEP implementation and regimens	parallel	5 (100)	0 (0)	14	13(93)	0(0)	14%	100%	male	0%
6	Oral Abstract Session 2 - Current issues in ART	Oral abstracts	7 (100)	0 (0)	15	13(86.6)	0(0)	26.60%	100%	male	0%
7	BHIVA Symposium - Improving Outcomes for People living with HIV	Industry sponsored	5 (83.3)	1 (16.7)	9	9(100)	0(0)	44.40%	83.30%	female	0%
8	Oral Abstract Session 3 - Comorbidities and Co-infections	Oral abstracts	6 (85.7)	1 (14.3)	17	17(100)	0(0)	29.40%	85.70%	male	0%
9	Best Posters 4 - Basic Science & HIV Cure	Poster	6 (66.6)	3 (33.3)	14	14(100)	0(0)	71.40%	66.60%	male	0%
10	Oral Abstract Session 4 - COVID19	Oral abstracts	7 (100)	0 (0)	5	5(100)	0(0)	80%	100%	male	0%
11	Best Posters 3 - Co-morbidities & Co-infections	Poster	9 (90)	1 (10)	14	13(93)	1(7)	28.50%	90%	male	7%
12	ACT NOW: Long-acting drugs against HIV	parallel	7 (87.5)	1 (12.5)	16	14(37.5)	1(6.25)	18.75%	87.50%	male	6.25%

Supplement S5. Characteristics of questions asked by panel composition. Data presented as n (%).

PANEL COMPOSITION	MAJORITY FEMALE	MAJORITY MALE	ALL MALE	P	MAJORITY WHITE	ALL WHITE	P
n	77	48	5		82	48	
Question type				<0.001			0.60
Neutral	37 (48.1)	30 (62.5)	1 (20.0)		46 (56.1)	22 (45.8)	
Polite	14 (18.2)	4 (8.3)	0 (0.0)		10 (12.2)	8 (16.7)	
Shows under-confidence	3 (3.9)	3 (6.2)	0 (0.0)		3 (3.7)	3 (6.2)	
Shows over-confidence	20 (26.0)	11 (22.9)	0 (0.0)		20 (24.4)	11 (22.9)	
Unknown	3 (3.9)	0 (0.0)	4 (80.0)		3 (3.7)	4 (8.3)	
Mode				0.02			0.04
Microphone	2 (2.6)	5 (10.4)	0 (0.0)		2 (2.4)	5 (10.4)	
Chat	45 (58.4)	33 (68.8)	1 (20.0)		47 (57.3)	32 (66.7)	
Chair/panel member	30 (39.0)	10 (20.8)	4 (80.0)		33 (40.2)	11 (22.9)	
Gender				0.54			0.36
Female	44 (57.1)	30 (62.5)	4 (80.0)		48 (58.5)	30 (62.5)	
Male	33 (42.9)	17 (35.4)	1 (20.0)		34 (41.5)	17 (35.4)	
Unknown	0 (0.0)	1 (2.1)	0 (0.0)		0 (0.0)	1 (2.1)	
Observed ethnicity				0.59			0.14
White	75 (97.4)	43 (89.6)	5 (100.0)		79 (96.3)	44 (91.7)	
Black	0 (0.0)	1 (2.1)	0 (0.0)		0 (0.0)	1 (2.1)	
Asian	1 (1.3)	1 (2.1)	0 (0.0)		2 (2.4)	0 (0.0)	
Unknown	1 (1.3)	3 (6.2)	0 (0.0)		1 (1.2)	3 (6.2)	
Country				0.34			0.09
UK	26 (33.8)	22 (45.8)	0 (0.0)		24 (29.3)	24 (50.0)	
Europe	44 (57.1)	22 (45.8)	4 (80.0)		49 (59.8)	21 (43.8)	
Outside EU	4 (5.2)	2 (4.2)	1 (20.0)		6 (7.3)	1 (2.1)	
Unknown	3 (3.9)	2 (4.2)	0 (0.0)		3 (3.7)	2 (4.2)	
Seniority				<0.001			0.01
Professor	28 (36.4)	7 (14.6)	2 (40.0)		29 (35.4)	8 (16.7)	
Doctor / Senior academic	34 (44.2)	31 (64.6)	0 (0.0)		38 (46.3)	27 (56.2)	
Scientist / AHP / PhD student	3 (3.9)	0 (0.0)	2 (40.0)		1 (1.2)	4 (8.3)	
Non-medical professional	9 (11.7)	4 (8.3)	1 (20.0)		11 (13.4)	3 (6.2)	
Unknown / other	3 (3.9)	6 (12.5)	0 (0.0)		3 (3.7)	6 (12.5)	

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Supplement S6. Relationship between panel composition by gender and audience participation. Total 12 sessions: 1 all male, 7 majority (50% or more) female, 4 majority male.

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Supplement S7. Relationship between panel composition by gender and audience participation. Total 12 sessions: 1 all male, 11 mixed.

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Supplement S8. Relationship between panel composition by ethnicity and audience participation. Total 12 sessions: 6 all white, 6 majority white.

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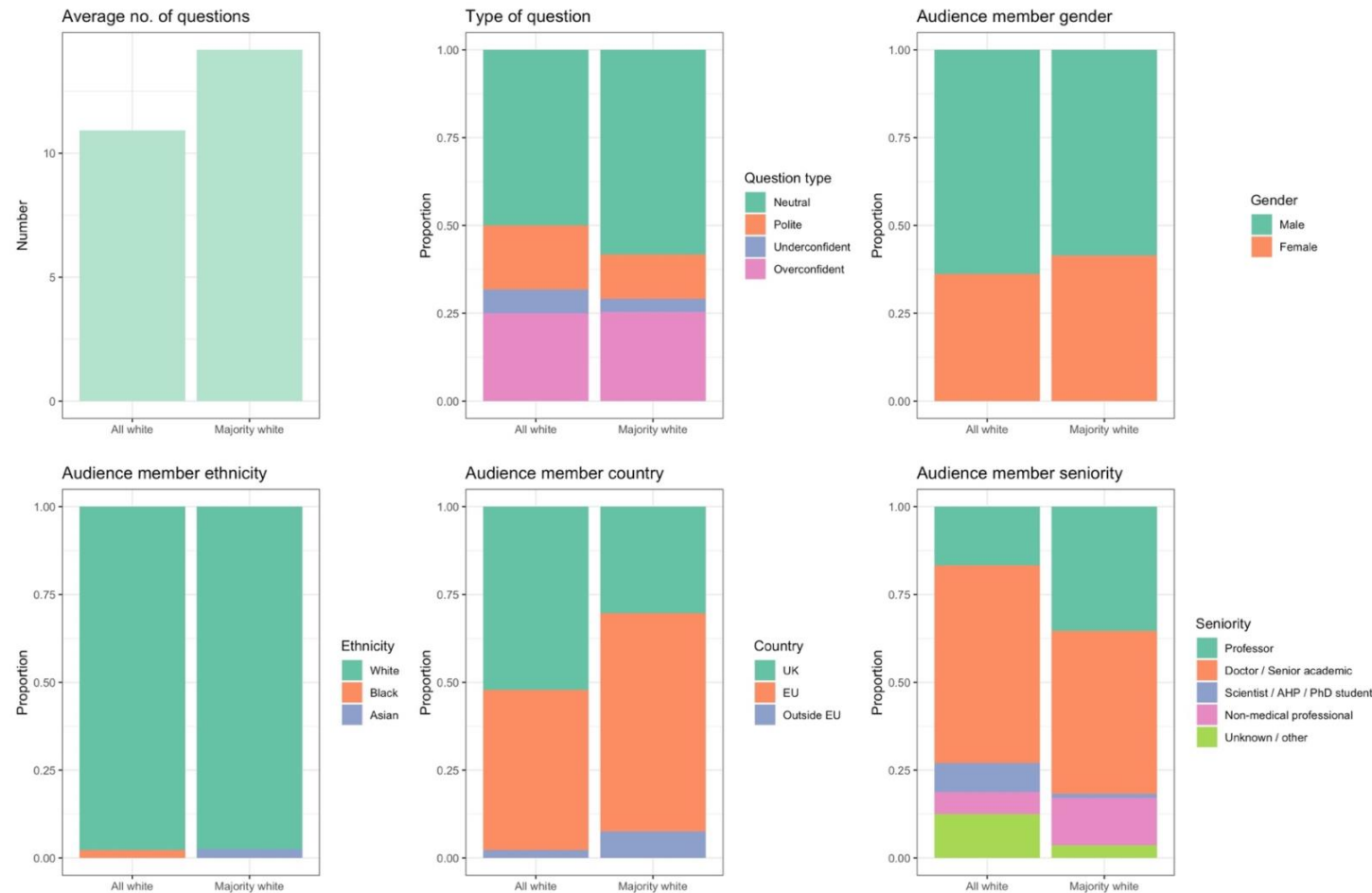
Supplement S9. Relationship between panel composition by gender and ethnicity and audience participation. Total 12 sessions: 1 all male all white, 2 majority female all white, 5 majority female majority white, 3 majority male all white, 1 majority male majority white.
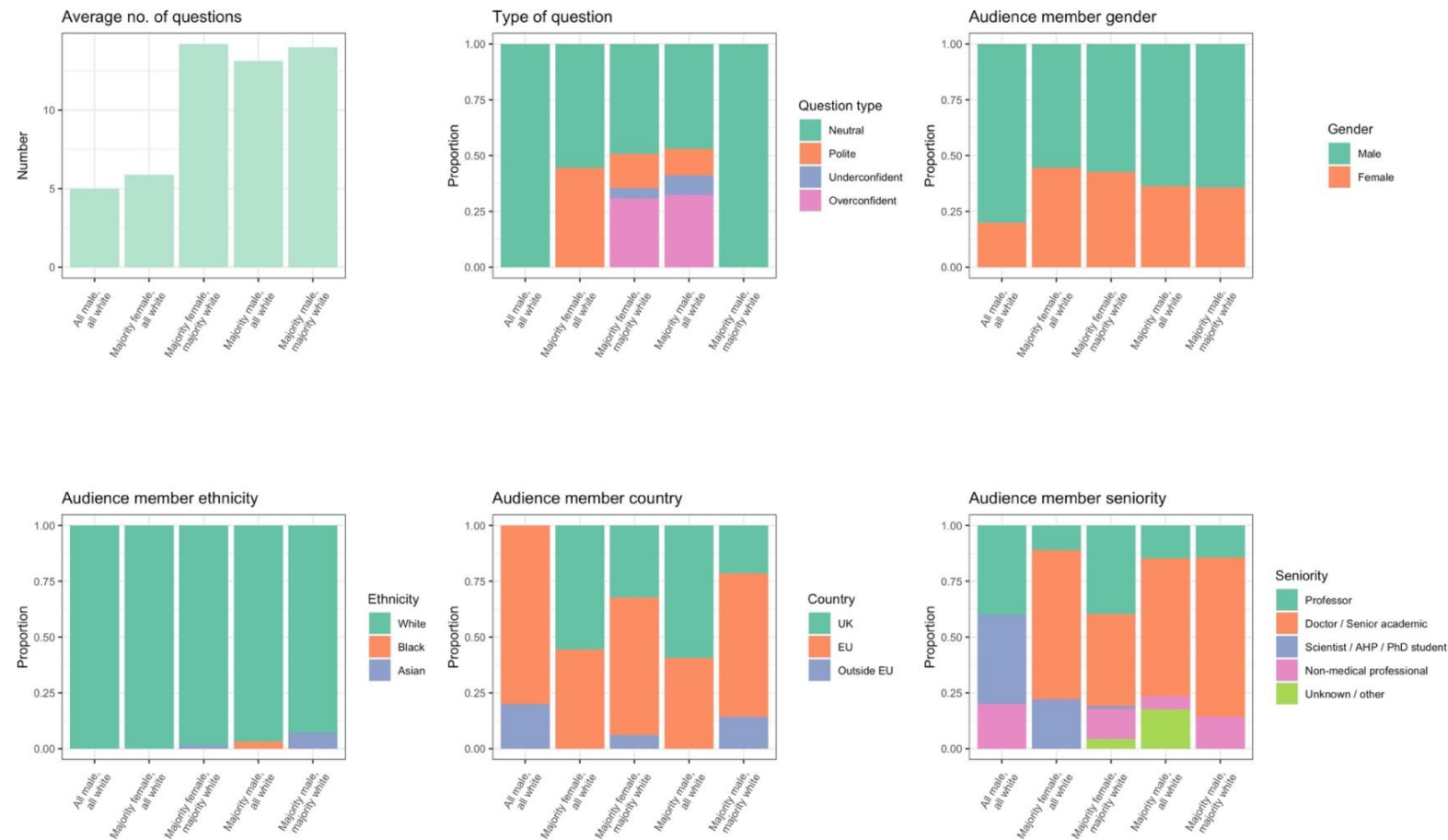
Supplement S10. Questions answered in survey broken down by self-identified gender and ethnicity, as reported by the respondents of the online survey. Data presented as n, (%)

Gender		Ethnicity				
Male	Female	White	Black	Asian	Mixed	Other
Have been to 21+ previous conferences						
136, (60)	130, (42.8)	220, (54)	4, (19)	14, (39)	18, (47.4)	21, (48.8)
Preference for Hybrid or Online (vs in-person or no preference)						
60, (26)	97, (32)	124, (30.4)	2, (9.5)	16, (44.4)	11, (29)	10, (23.3)
Preference for asking questions at the microphone (vs online)						
38, (16.7)	24, (7.9)	51 (12.5)	6 (28.6)	3 (8.3)	1 (2.6)	6 (14)
Asked 1 or more question at EACS 2021						
89, (39.2)	106, (34.9)	147, (36)	11, (52.4)	13, (36.1)	15, (39.5)	18, (41.9)

Supplement S11. Barriers to asking questions at EACS 2021, broken down by self-identified gender and ethnicity, reported by respondents of the online survey. (Data removed for respondents who did not give gender or ethnicity) Data presented as n, %

	Gender (Self-identified)		Ethnicity (Self-Identified)				
	Male	Female	White	Black	Asian	Mixed	Other
N/A (asked more than 4 questions)	28, 8.5%	19, 3.8%	34, 5.2%	4, 14.8%	3, 6.1%	2, 3.2%	5, 8.2%
I had nothing to ask	102, 30.8%	108, 21.8%	159, 24.5%	7, 25.9%	15, 30.6%	13, 20.6%	20, 32.8%
Worried about asking a stupid question	27, 8.1%	63, 12.7%	71, 10.9%	3, 11.1%	5, 10.2%	7, 11.1%	6, 9.8%
Previous rejection/bad experience	2, 0.6%	7, 1.4%	6, 0.9%	1, 3.7%	0, 0%	1, 1.6%	0, 0%
I felt too junior	17, 5.1%	36, 7.2%	42, 6.5%	1, 3.7%	4, 8.2%	5, 7.9%	2, 3.3%
I felt too senior	4, 1.2%	1, 0.2%	6, 0.9%	0, 0%	0, 0%	0, 0%	1, 1.6%
I felt embarrassed/ shy/ nervous speaking in public	24, 7.5%	60, 12.1%	71, 10.9%	1, 3.7%	4, 8.2%	6, 9.5%	3, 4.9%
I found the panel/ speaker/ chair intimidating	2, 0.6%	6, 1.2%	5, 0.8%	0, 0%	1, 2.0%	2, 3.2%	1, 1.6%
I found the audience intimidating	4, 1.2%	11, 2.2%	11, 1.7%	0, 0%	1, 2.0%	3, 4.8%	1, 1.6%
Didn't want to appear arrogant/ critical of the speaker	20, 6.0%	8, 1.6%	25, 3.9%	1, 3.7%	2, 4.1%	0, 0%	1, 1.6%
Lack of confidence in my knowledge	16, 4.8%	36, 7.2%	41, 6.3%	5, 18.5%	3, 6.1%	5, 7.9%	1, 1.6%
Lack of confidence in English language	28, 8.5%	47, 9.5%	63, 9.7%	0, 0%	4, 8.2%	6, 9.5%	7, 11.5%

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There wasn't enough time	47, 14.2%	65, 13.1%	83, 12.8%	3, 11.1%	5, 10.2%	9, 14.3%	11, 18.0%
My boss was in the audience	0, 0%	1, 0.2%	1, 0.2%	0, 0%	0, 0%	0, 0%	0, 0%