

This week is *Circulation's* annual Go Red for Women issue. Please join Special Issue Editors Sana Al-Khatib and Mercedes R. Carnethon as they discuss the issue. Then they interview authors Jaime Kitt and Shanshan Sheehy as they discuss the articles "Cardiac Remodeling After Hypertensive Pregnancy Following Physician-Optimized Blood Pressure Self-Management: The POP-HT Randomized Clinical Trial Imaging Substudy" and "Perceived Interpersonal Racism in Relation to Incident Coronary Heart Disease Among Black Women."

Dr. Sana Al-Khatib:

Hello and welcome to the Circulation on the Run podcast. I'm Sana Al-Khatib. I am a senior associate editor for Circulation, and an electrophysiologist at Duke University. I had the pleasure of serving as a co-editor for the 2024 Go Red for Women issue of the Journal, along with my colleague and friend Dr. Carnethon.

In this podcast, unlike what we did in prior years, we will not present a list of all the articles that were published in the issue. For that list, we refer you to the editor's page. Instead, I'd like to answer two questions. The first question is, what does the 2024 Go Red for Women issue mostly focus on? And the answer is, the issue focuses on highlighting differences in treatments and response to treatments between men and women. A good example is a study looking at sex differences in the effect of Mavacamten on outcomes for hypertrophic obstructive cardiomyopathy.

There's also great emphasis on perceived interpersonal racism and how it affects heart disease. This is such an important topic, and a paper on this topic was chosen as one of two editor's pick papers. The second editor's pick paper was on cardiac remodeling after implementing physician optimized blood pressure, self-management for hypertensive pregnancy. This is a very interesting topic as well.

The second question is, of all the 2024 Go Red for Women issue educational offerings, is there one that I would like to call out? And I really like all the papers in the issue and I wholeheartedly thank all the authors who contributed. However, one paper I would like to call out is the conversation with a pioneer in cardiology, Dr. Nanette Wenger, on Defining Actionable Items in Women and Heart Disease.

I personally found that article very inspiring. I hope you will do that as well. With this, I'll turn over to Mercy. And ask you, Mercy, what are your thoughts about the issue? What would you like to share with our listeners?

Dr. Mercedes Carnethon:

Thank you so much, Sana. It's really such a pleasure to join you again as the co-editor of the Special Issue for Go Red for Women. Those of you who know me know I'm an epidemiologist and professor at the Northwestern University Feinberg School of Medicine. So my primary focus in this field is really on outstanding research. And that's what we're featuring here today with our combination of original research articles as well as frame of reference pieces. And as you point out, just really an amazing interview as well as a piece for our centennial collection.

I think what excites me the most is that we're on the cusp of 100 years of the American Heart Association, something that we're celebrating throughout the year. And I'm so happy that attention to women's health continues to be a priority for the American Heart Association. And I really think that the cross section of articles featured here today that you described covers so many key issues in the prevention and the care of women with cardiovascular diseases.

So again, like you, I really thank our authors for their excellent submission. Our team, for going through really a lot of work to pull these together. And I hope that our listenership here at Circulation on the Run enjoys our discussions with authors and our summary of the issue. So please enjoy our episode.

Dr. Sana Al-Khatib:

Mercy, thank you so much. This is so well said. I personally will also join you by relaying my heartfelt thanks to everyone who contributed to the 2024 Go Red for Women issue. Mercy, it has been a pleasure to work with you on it.

I also want to thank the authors, all the associate editors, the circulation staff, and the circulation leadership team. Accomplishing this work takes a village and I couldn't be more pleased with the teamwork that made all of this possible. So for all of our listeners, enjoy this issue and we look forward to getting feedback from you. Thank you.

Dr. Mercedes Carnethon:

Thank you.

Dr. Sana Al-Khatib:

Hello and welcome to the Circulation on the Run podcast. I am Sana Al-Khatib. I'm a senior associate editor for Circulation and a cardiac electrophysiologist at Duke University. I had the pleasure of serving as a co-editor for the 2024 Go Red for Women issue of the Journal, along with my colleague and friend Dr. Carnethon.

Today I'm delighted to speak with Dr. Jamie Kitt, who is a consultant, cardiologist, and a researcher at Radcliffe Department of Medicine, University of Oxford in Oxford, the United Kingdom. Dr. Kitt was the first author of one of two editor's pick articles in the 2024 Go Red for Women issue, titled Cardiac Remodeling After Hypertensive Pregnancy Following Physician Optimized Blood Pressure, Self-Management. The POP HT Randomized Clinical Trial Imaging Substudy.

And I'm also thrilled to connect with my colleague, Dr. Greg Hundley, the Circulation associate editor who handled this paper. And the director of the Pauly Heart Center at VCU in Richmond, Virginia. Thank you both so much for joining us today.

Dr. Jamie Kitt:

Thank you, Sana.

Dr. Greg Hundley:

Thank you, Sana.

Dr. Sana Al-Khatib:

So I'll start with you, Jamie. Thank you so much for submitting your science to Circulation and congratulations on the publication of your article. I'd like to ask you to share with us the hypothesis of your study and tell us about what inspired you and your co-authors to pursue this study? And what led you to think to submit it for the Go Red for Women issue?

Dr. Jamie Kitt:

Thank you. I'll try and take each part of that question as it comes. So the original concept of the Pop HT trial came from some earlier pilot work that suggested that if you could improve the blood pressure in the first few weeks to months after giving birth, once you've had a hypertensive pregnancy, that there could be a way of lowering the blood pressure on a longer term. These were called the SNAP HT and SNAP HG extension studies, which were published in hypertension in the preceding years.

So we knew that self-management was safe, that it was feasible, that it was well liked. What we wanted to do with this study was one, see if we could reproduce the findings of the smaller pilot. But two, as a cardiologist with an interest in imaging, could we actually change the adverse cardiac remodeling that we know these women have after they've had a hypertensive pregnancy? And we know that those adverse changes associated in the longer term with worse cardiovascular outcomes.

So that was the hypothesis. One, could we allow blood pressure in the postpartum period through tele-monitoring with remote guidance of anti-hypertensives? And two, would this lowering of the blood pressure in this nine month period lead to beneficial cardiac remodeling?

So the next part, which is what was inspired and pursuing, I guess as well as the pilot work, the senior author, Professor Leason had been working in this area for a while. And some of his earlier DFIL students, I was one of his DFIL students, had done some nice observational data suggesting there was a really strong tie between six weeks postpartum and what's happening a decade later, which is why we thought this was a critical window. The so-called fourth trimester or puerperium.

And in terms of the timing, I think it just fell really nicely for the Go Red. I mean, we started the trial just before COVID hit. We were affected by COVID, as lots of trials were, but thankfully managed to keep going. Because of that, there were a little bit of delays and analysis and results. And it just so happened to coincide with late breaking in Philadelphia or AHA, and the Go Red campaign. So I guess it was fortuitous.

Dr. Sana Al-Khatib:

I guess so, we were lucky with that. Thank you so much for sending it to us. Let me ask you if you could please elaborate on some of the methodology of this study?

Dr. Jamie Kitt:

Sure. So this is what's known as a PROBE study, or prospectively randomized open-label blinded endpoint. And for people who aren't familiar with that, essentially it's a way of running a randomized trial where it's impossible to remain blind as an investigator because of the nature of the intervention.

So in this intervention, the study clinicians who were obstetricians and cardiologists, were having to remotely manage blood pressure. And so for that we needed an awareness of their medical history, their blood results, their drugs, to be able to safely do so. So they're randomized at enrollment using secure web-based software in a one-to-one algorithm. Into control care, which in the UK is primary care practitioner and a midwife at day seven to 10 and at six or eight weeks.

Then the intervention arm had the intervention, which for those who haven't read the paper in too much detail, it's just to quickly summate, is essentially they install an app on their phone. They're given a wireless monitor provided by Enron, which is validated for use in preeclampsia. And then they remotely at those readings and an algorithm tells them if their readings are good, too low, too high. And if they're too high, the clinicians are notified and promptly titrate their medications accordingly to keep the blood pressure within a target range.

So the blinded endpoint part of it means that once all that data is collected, and in the final study visit done at roughly nine months, included 24-hour blood pressure data and bedside or clinic BP data. It's uploaded in an anonymized fashion so that the people doing the analysis have no idea what the original location was. And it's a way of trying to reduce bias within a non-double-blinded study.

Dr. Sana Al-Khatib:

Yeah, that's very interesting. So what about the patient population that you focused on?

Dr. Jamie Kitt:

So the patient population in this trial was limited by it being a single center, RCT, and the local demographic within Oxfordshire, which is sort of classed as a sort of more rural part of Middle England. There's about a half a million people serving our population here and 80% of them are white. The study involved white patients, Black patients, Asian patients, and those from underrepresented communities, as you'll see in the table that displays the study characteristics.

We had wanted to make it a multicenter trial involving George's in London, which would've increased the representation of the Bain group. But unfortunately, the impact of COVID meant we couldn't get a multicenter trial going during that period. And we wanted to focus on getting high levels of imaging outcomes of good quality so that we could actually answer the key primary and secondary outcomes of the trial.

Dr. Sana Al-Khatib:

No, I totally understand. Can you tell us about the main findings of your study?

Dr. Jamie Kitt:

Yeah, so the main findings contained within the circulation paper, which is obviously the imaging sub study. The other findings on blood pressure and admissions being in a JAMA paper separately, pertain to changes in cardiac structure and function.

So what we saw was that after nine months of self-management of blood pressure, achieving an almost seven millimeter lower systolic and five and a half roughly diastolic. Blood pressure being lower compared to the control arm, we saw reductions in left atrial volume accompanied by reductions in diastolic fitting assessed by tissue doppler imaging of the median lateral walls using echocardiogram.

And we also saw beneficial remodeling of the left ventricle itself. So there was a reduction in relative wall thickness and there was reductions in LV mass. And these are accompanied by improvements in systolic function, and as keeping with that, improvements in the end diastolic volume and stroke volumes. So it was nice to see that we know across the spectrum of diastology and cytology, we saw improvements.

Dr. Sana Al-Khatib:

That's really interesting. So in your mind, what are the clinical implications of those findings?

Dr. Jamie Kitt:

So I think this is the first study that we're aware of certainly, that's linked improving blood pressure in the postpartum period to beneficial cardiac remodeling. I obviously alluded to echo. I think one of the strengths of the study is we used at CMR in a high number of women, over 170 of the women had CMR, and we also got tissue characterization.

So I think that we've got data showing that a treatment in the postpartum period, which is safe, easy to deliver, certainly in Western eye societies where you can do tele monitoring, can not only improve blood pressure but potentially alter the trajectory of adverse cardiac remodeling that these women are on for the rest of their life.

We've also had a little bit of a mechanistic understanding. So a large number of them had T-1 and T-2 maps and a smaller subset had late gadolinium imaging. So we now know that this is not a fibrotic process, it's not driven by ongoing edema and inflammation at nine months. It appears to be primarily

driven by changes in myocyte size and function, which seems to be accompanied by improvements in blood pressure.

Dr. Sana Al-Khatib:

Great. So at this point I'd like to turn over to Dr. Hundley. Greg, what is your perspective on this article? And why did you think it was important to include in the Go Red for Women issue?

Dr. Greg Hundley:

Right, Sana. Well, thank you so much. And also listeners. And also Jamie, Dr. Kitt, thank you for sending this wonderful article to us at Circulation and sharing this very important study.

Sana, I kind of think of four things that really attracted me to this paper. The first was, one, the really sophisticated implementation of imaging. No small feat to accomplish at a high level, transthoracic echocardiograms and cardiovascular magnetic resonance imaging in this patient population. And I really think the combination of the two allowed us to gain important insights relative to the outcomes.

Second point gets into some of the methods. And first was in peripartum, postpartum women to recognize what is high blood pressure? What blood pressure metrics are we to identify? And then to think about therapeutic interventions that are safe and that women will take. We might be worried about ACE inhibitors, for example, in this population, particularly if a woman wanted to become pregnant again.

So to work through the dynamic so that the practitioners and the patients are comfortable with the antihypertensive regimens, and also didn't cause a lot of side effects. Beta blockers that can promote depression. I think it was very important that this team thought this through and came up with a workable intervention solution.

Number three, and Dr. Kitt pointed this out, wow, using monitoring, where our smartphones and things of that nature. Where we're following and participating in the blood pressure assessments in real time with our practitioners or healthcare systems, I thought that was highly innovative and maybe something that we see in other studies moving on.

And then number four, and maybe most importantly, the outcomes. Early, this group identified that by implementing these therapeutic interventions, doing the appropriate monitoring, they were able to reduce LV mass. And, Sana, I know you in the world of electrophysiology, and for many of our listeners, seeing folks as adults in their 50s and 60s, we see the ravages of hypertension and left ventricular hypertrophy, and some of the fibrosis that Dr. Kitt mentioned.

Well here, by initiating early, the authors were able to show that they prevented that increase in LV mass. And so I think for those four reasons, Sana. One, just recognition of the issue. Two, implementation of advanced imaging. Three, the technology where the partnership, enabling the patients and the physicians to work together to monitor in real time.

And then number four, the very impressive outcome of showing reductions in LV mass at a point when it's modifiable instead of many years later or 20 years later, when that fibrosis is present, and not necessarily are we able to get favorable remodeling that was shown in this study.

Dr. Sana Al-Khatib:

Well, thank you for this wonderful and insightful summary. Greg. I agree with a lot of the points that you made and I definitely learned from your perspectives there. So let me ask Jamie to, if I can ask you the last question regarding what do you think the next steps will be? And what should future research focus on?

Dr. Jamie Kitt:

That's a great question. So obviously this was a single center study, so we want to validate the ability to tele-monitor women and that are just highly hypertensive safely in a multicenter population across different geographic, ethnic, and other geopolitical barriers. So we're running that in the UK hopefully starting later this year. That's going to be called SNAP Two in around 2,000 women.

Ultimately, obviously it would be great if we could make this translational to other healthcare systems as well. And I know other groups are working on that at present, such as the CRADLE products by Andy Shennan.

The second thing is this cardiac remodeling signal that we're seeing at nine months maintained out to a longer term? So we're currently planning to bring these women back at roughly five years postpartum to see if this cardiac remodeling persists. Or if it's being diluted out by too much salt, not enough exercise, changes in BMI, and that all of those factors that we know that influence traditional hypertensive risk.

And then I think going forward, it's also important to understand is this just a blood pressure lowering impact? Or is there a more specific class effect? For example, we love ACE inhibitors within cardiology. We've been using them across spectrum of conditions for many years. Is there an additive benefit if you use a inhibitors above and beyond beta blockers and/or calcium channel blockers? I think that's something that's worth exploring in future research.

And furthermore, as Greg alluded to, what are the blood pressure metrics we should be using? So as you know, there's discrepancy around the world as to what is the cutoff for hypertension, and AHA over 130/80. Most of Europe are still 140/90. In pregnancy, should we be following AHA and going 130/80? Or should be sticking with a more conservative approach? And some don't titrate until 150, 100.

I strongly favor the former, but obviously to see we need to create an evidence base for this. So I guess those are my areas going forward.

Dr. Sana Al-Khatib:

That's fascinating, and I'll be eager to see what all this research will show. So, Greg, what are your thoughts in terms of what research is still needed in this area?

Dr. Greg Hundley:

Sana, great question. And I really, Jamie, want to follow up on your comment about underrepresented minorities. I think worldwide, there are many women we know of Black race that suffer more frequently this condition, the pregnancy associated hypertension, and then also the adverse outcomes that occur downstream, being untreated.

And so I think taking your concept and implementing it, you said it very nicely, across others differences of race, I think that's important. But I think also getting into folks situations that have challenging social determinants of health, that's where this type of study could have major impact.

And I think, Sana, for me, moving into worldwide urban centers. Thinking about how we might implement all this technologies that were in this study in rural settings, I think those will be the next studies to be carefully thought out. Because that's where we could really see major impact, particularly if these results can be reproduced in those populations.

Dr. Sana Al-Khatib:

Well, Greg, thank you so much for bringing up these really critically important points and I completely agree with that. One point I wanted to get back to, Greg, relates to something you said. That yes, with the reduction in hypertrophy, reduction in fibrosis, all of that, this is all great.

What I would love to see, especially as an electrophysiologist who focuses on arrhythmias and sudden cardiac death prevention and everything, is would this translate into improved outcomes in terms of improved survival, the lower risk of arrhythmias, and so on so forth?

So yes, there are so many directions that the research team and others can take in relation to this very important topic. So Doctors Kitt and Hundley, thank you so much for being with us. And for helping us understand the importance of this study better and the appreciate the clinical implications of this work.

Dr. Mercedes Carnethon:

Well, welcome to this edition to Circulation on the Run podcast. My name again is Mercedes Carnethon from the Northwestern University Feinberg School of Medicine. And I'm extremely pleased to have the opportunity to speak with one of the authors of one of our feature original research articles in this eighth edition of our Go Red for Women circulation issue.

We are so excited to have Dr. Shanshan Sheehy from the Boston University School of Medicine with us to talk about her paper entitled Perceived Interpersonal Racism in Relation to Incident Coronary Heart Disease Among Black Women. Welcome, Shanshan.

Dr. Shanshan Sheehy:

Thank you for having me.

Dr. Mercedes Carnethon:

I am really excited that you chose to submit this issue, and for us to have the opportunity to include it in the Go Red for Women issue. Interestingly, I not only serve as the co-guest editor of this special edition, but as well of the disparities issue. And this is a wonderful piece that I think most certainly fit well with both of those special themed issues.

And so I'm really excited to have the opportunity to talk with you about this today, given the importance of these intersecting identities that are both associated with health disparities. So I'd really love to hear from you. Can you give us an overview of your article? And specifically what did you study? And how did you do that?

Dr. Shanshan Sheehy:

Sure. So as you know compared to other race ethnic groups, Black Americans have a higher burden of cardiovascular disease and early age of onset. And the racism is highly prevalent in the United States. The direct evidence between perceived racism with incident coronary heart disease is lacking, even though there were several lines of research study racism, how that impact with different health outcome? Majority of the literature was focused on worse mental health outcome, subclinical cardiovascular endpoint for example with hypertension.

So the direct evidence linking with incident coronary heart disease is lacking. So that's prompt us to study the question is higher perceived racism associated with higher risk incident CHD among Black women? So we really want to find out why the perceived interpersonal racism is associated with higher risk of coronary heart disease. And to answer that question, we leveraged rich data collected from a large prospective cohort study, the Black Women's Health Study.

It is a large prospective cohort study of 59,000 Black women across the US, and started in 1995. In 1997, we asked our participant perceived racism in their everyday life and perceived racism in settings involve job, housing, and interaction with the police. And a specific question was asked, "Were you ever perceived being treated differently due to your race? People act as if they think you are dishonest? Or do you perceive you're being treated differently due to your race in interaction in term of job application, applying for mortgage, or interaction with the police?"

And always summarize a response into a summary score. And compared women who have the highest quota of perceived racism to the women who reported the lowest quota of perceived racism. And then we found perceived racism in employment, housing, and interaction with the police was associated with higher risk of incident CHD. And in term of perceived racism in everyday life was another associative with increased risk.

Dr. Mercedes Carnethon:

That is such an interesting finding. I think one of the things that stood out to me is that perceptions of racism can be very challenging for people to report because what one person perceives may not be a shared experience that other people have. And I think the differences in the associations that you observe depending on the type of racism, were very interesting.

Do you have a hypothesis about why perceptions of racism in certain domains were associated with outcomes whereas they were not in others?

Dr. Shanshan Sheehy:

Yeah, those are good questions. So I think two explanations. One is the type of racism. So experienced been denied at the job promotion or have an interaction with the police, being stopped, and may have a greater impact for cardiovascular health for Black women, them being treated poorly at the restaurant. So it may involve a different biological pathway.

So when we think about perceived racism, we see it as a psychosocial stressor. So receive poor services at the restaurant may be easy to let go or maybe easy to mitigate through coping mechanism. While involved in a discrimination interaction with police, at a job, at a housing, it's a harsher event, and may involve some biological mechanics, involved maybe with trauma experience, right? The biological pathway may be different.

And second, also in terms of participant in terms of measurement of this exposure perceive. So participant need to fill other questionnaire asking those questions. So it's harder to forget, or they may recall more accurately when I've been denied at a job promotion, than last week I received poor services at the restaurant. Maybe I just don't bother me, I decide I like to go.

Dr. Mercedes Carnethon:

No, I think that's a really good point. It sounds like what you're suggesting is that some of it could have to do with the severity of the situation. And how that leads one to recall it when they're asked on a questionnaire, perhaps the recall is better, sounds like is one of your potential hypotheses.

And the other being that there are different mechanisms and pathways, perhaps one eliciting more of a stress response when it's a negative interaction with a police officer or person where coping skills can't come to mind. I think those are really good potential hypotheses.

Certainly you and your team have done an excellent job with this and you know a lot about why this could have happened. Are there findings in this paper that contradicted the hypotheses you had coming in? Or that simply surprised you? So what surprised you about these findings?



Dr. Shanshan Sheehy:

So what surprised me about the finding is that when we look at, we adjust for major risk factors for cardiovascular disease, hypertension, diabetes, smoking, physical activity, diet, neighborhood SES, education. So even after accounting all these potential factors of geographical region, especially after accounting for education and the neighborhood SES, we're still seeing an elevated risk, associated with incidence of CHD. I think that's what surprised me.

And also that's highlight that it is now, they're not eating healthy, they're obese, they have hypertension, diabetes. It is also highlight that extreme racism may be contributed to the racial disparity in cardiovascular disease.

Dr. Mercedes Carnethon:

So if I understand you correctly, what you're saying, so what surprised you, was that this effect was still present once we took into account a lot of the cardiovascular risk factors that would fall along the pathway. And even once you took those into account, you still saw an influence of your primary measure of perceived racism?

Dr. Shanshan Sheehy:

Yes.

Dr. Mercedes Carnethon:

Yeah, no, I think that's a really good point. If you were to think about where to go next, right? So you brought up I think one of the next questions that I really had in mind, which is how perceptions of racism influence risks for cardiovascular disease? And you talked a little bit about stress pathways and other stressful factors.

A little bit more, I'd love to hear insights from you about what you think the next step is in further exploring this question? And this question, this is the joy of the podcast format, is we invite speculation. Our listeners love to hear what isn't in the paper and what you think you would want to study next about the mechanisms and pathways.

Dr. Shanshan Sheehy:

Yes, I think this paper is just a baby step because racism is a really complex social construct. It exists in multiple levels, multiple domains, and they may outside our conscious awareness. So in this paper we only study perceived racism. So you first have to perceive it and are willing to report in the instrument, right?

So I might be a women living in an area that have a higher structural racism, but I may not perceive it and I may not report it. And we do find in our study population, and also in prior studies, suggesting the women who have a higher education are more likely to report higher perceived racism.

One topic is that they have a higher education level, they're aware of those racism events happen around her, so therefore she reported. And the second could be the working environment. So I think going forward we really need to study both structural racism and perceived racism and to study the combined effect of both.

Second question is about, in this paper we only studied perceived racism at one time point in 1997. So it's a fixed exposure, but the racism varies over time, which we need to study racism at multiple time. Look at it as time vary exposure and look at it through a life course perspective because in childhood might have an impact down the road.

So we really need to look at this question through a life course perspective to examine how racism impact cardiovascular health? And is there any sensitive period in a women's life course? Yeah, and even the intergenerational impact of racism. So I think there's a lot need to be done.

And also in terms of racism, there's an active evolving research field of to study how we better measure racism, right? Currently, there's no gold standard of structural racism. It's an actively evolving research field. I think this paper is just a baby step. Perceived racism has its limitations, but the structural racism has its limitations too.

Structuralism racism, really we connect by zip code, a participant zip code, and connected with an administrative database. So the lowers geographic level, we can get to state level or county level or census tract block level. But you and me may live in the same census tract block, but we can have experienced the same level of perceived structural racism, but we may perceive racism differently, right? How that impact our...

So I really feel future research need to combine both structural racism and the perceived racism to look at the joint effect of both. And also needless to say there's more research need to help to better capture, define, and measure racism.

Dr. Mercedes Carnethon:

Thank you so much for really outlining that. It's great to hear from an expert such as yourself in this area about the directions that we need to go. And I really do think that this idea of exploring the intersection between structural racism and individual perceptions of racism really do offer us additional insights about this entire process and thoughts about how we can intervene.

Shifting gears a little bit, because again, as I mentioned, this is such intriguing work. It is carried out only among Black women. Now, the Black Women's Health Study, I'm aware of it. I think it's just an amazing resource. Ironically, I think I was an undergraduate student when it started. I recall getting an invitation, but at the time I was too young to join, so I didn't get to join the study and really be part of it. It's just been great to see it mature and the amount of data over time.

So we have one group here, we have Black women. It is appropriate that it's a single gender, it's a single sex. Again, asking you to speculate outside of the current paper, do you think women are having a different experience? So why is this important featured in the Go Red for Women issue? Versus a study that would've included both men and women and may have asked about interpersonal racism and its association with cardiovascular disease and men and women?

Why study Black women alone? And you may have alluded to this in your intro, but tell me again, why is this population of Black women particularly important for you to ask this question?

Dr. Shanshan Sheehy:

I think we only have a group of Black women as a strength rather than limitation because in terms of type of racism experience, men and women might experience different type of racism event. And also men report perceived racism differently.

And also I see Black women, I know Black women, the type of racism event Black women experience are might different than Asian women. But then we also take into account a lot of residual confounding or uncontrollable unmeasured confounding issue. So I actually see it as a stress rather than limitation.

I think for our study, the fact that we only focus on a group of Black women, this is actually the strength of our study rather than limitation. Because we have taken into account residual confounding and unmeasured confounding. Compared to Black men, Black women might experience different type of racism events and they may report differently.

Dr. Mercedes Carnethon:

No, I think that's a really good point. And I know a point that certainly appears every year in our annual statistical update published in *Circulation*, is that when we look at disparities in coronary heart disease and other forms of cardiovascular disease, those disparities between Black and for example, white adults tend to be even greater among women than they are among men. And so I'm extremely pleased to see this research carried out in this high risk population.

I just wanted to, you've given us so much to think about as far as future directions and about how we should use these findings to continue to explore a very important issue. I wanted to give you an opportunity to end with any additional thoughts or things that you might like to have our audience think about as we go forward. For example, how would you like to see this research used? So I'd love to give you that final word on that.

Dr. Shanshan Sheehy:

I think I want to highlight is the participant in the Black Women's Health Study. I think this research wouldn't be possible had they not provided the response, not participated in the study. So I really want to acknowledge the contribution of the 59,000 Black women who have provided their, answered the questionnaire every two years. Provide a biospecimen sample and really engaged in the study.

And I think that's made it very unique data resources to be able to answer these questions. So I think I really highlight the importance of our participant and their contribution and dedication.

Dr. Mercedes Carnethon:

Shanshan, I'm so glad you ended on that note. As an epidemiologist, I do this sort of research. And I often say we can't answer questions if we don't have the people enrolled and involved in our studies where we need to generate these answers. And it takes a lot of work and time to get people enrolled in research studies and people make sacrifices to contribute to our science.

And so really thank you for highlighting what we all need to be cognizant of, which is that we need women to join research studies and stick with them. And we need women from groups that are traditionally underrepresented in research to join these research studies. And so thank you for choosing that as a final note.

I've really enjoyed our discussion today, Shanshan. I thank you and your co-authors for your careful work, your willingness to be receptive to feedback, to generate what I think is a really high impact piece that I hope that all of our reviewers enjoy. So thank you again so much.

Dr. Shanshan Sheehy:

Thank you, Mercedes. It's a great pleasure to talk with you.

Dr. Mercedes Carnethon:

Great. Well thank you so much. And I think this is a wrap up of one of our second author discussions today with Shanshan Sheehy from Boston University. Thank you again. And I hope that everyone enjoys this episode of *Circulation on the Run* and turns to our episode of the eighth annual Go Red for Women issue. So thank you.

Dr. Sana Al-Khatib:

And many thanks to you, our listeners, for joining the *Circulation on the Run* podcast. May Learning always bring you happiness. Thank you.

Dr. Peder Myhre:

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