Aging and Oral Health Research:
Insights from the 2023 AADOCR Meeting within a Meeting

GSA Momentum Discussions Podcast from The Gerontological Society of America

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Karen Tracy:

Welcome to this GSA Momentum discussion podcast episode titled, Aging and Oral Health Research: Insights from the 2023 AADOCR Meeting within a Meeting. GSA Momentum Discussions highlight topics experiencing great momentum in the field of gerontology. We are grateful to Haleon for their support of this podcast episode. My name is Karen Tracy, and I'm the Vice President for Strategic Alliances at the Gerontological Society of America, or GSA.

I'm pleased to serve as the host for today's Momentum Discussion. I am pleased to be joined today with Jane Weintraub, who is in the Department of Pediatric and Public Health at Adams School of Dentistry at the University of North Carolina at Chapel Hill. She's also the immediate past president of the American Association for Dental, Oral and Cranial Facial Research. Joining us is Carla Perissinotto, who is in the division of Geriatrics School of Medicine at the University of California San Francisco and Riva Touger-Decker who is in the Diagnostic Sciences unit of Rutgers School of Dental Medicine School of Health Professions at Rutgers State University of New Jersey. Welcome, Dr. Weintraub, Dr. Perissinotto and Dr. Touger-Decker. I'm glad you could join me.

In 2016, GSA began our oral health and essential element of healthy aging initiative. We observed that greater attention on older adults needed to be discussed. We produced several publications, conducted numerous webinars and discussions at our annual scientific meeting. We've been advocating for greater access to oral care, and we've also made a commitment to work collaboratively with all of our communities of interest who address issues in the care and research of older adult oral health. This is why we're here today. It's a relationship with AADOCR. As a research organization, we have members in both organizations. Jane, as the 2022-2023 President of AADOCR, you identified a gap in the oral health field, a lack of research related to oral health in the aging population. Could you tell me, can he audience how you were able to address this gap?

Dr. Jane Weintraub:

Thank you. The American Association for Dental Research (AADR) expanded its name to the American Association for Dental, Oral, and Craniofacial Research (AADOCR) a few years ago as part of its science first initiative to welcome new members and to dispel notions that we were only about teeth. Oral health research is much broader than that specific body part. It increasingly encompasses the integration of oral health with all aspects of health. As part of my sabbatical back in 2016, I had the privilege to spend a month at the National Institute of Dental and Craniofacial Research (the NIDCR), and learned about the new trans NIH focus on geroscience. At this time, the initiative did not have much focus on oral health. I was inspired to switch my research focus from kids to older adults and draw attention to this gap. We know poor oral health can have a major impact on quality of life, and it can be a risk factor for or sequela of other health conditions. Yet, it's been too often overlooked. It's time to highlight these important connections. Thank you, Karen, and GSA, for this opportunity.

Karen Tracy:

We're happy to have you, Jane. I understand that AADOCR had a Meeting within a Meeting this past March. Can you discuss how this came about?

Dr. Jane Weintraub:

As part of our expanded name, we started a "Meeting within a Meeting" format during our annual meeting to focus on timely cutting-edge areas of research and encourage collaborations between oral health researchers and those not currently engaged in oral health research. As AADOCR President, I selected this Meeting within a Meeting topic, "geroscience aging and oral health research" to try to bring together experts on aging who are not DOC, that is dental, oral, and craniofacial researchers to think about the oral health aspects of this process and inspire DOC researchers to include older adults as part of their study populations and research attention. I also knew about the United Nations Declaration of 2021 to 2030 as the UN decade of Healthy Aging.

A summary of the proceedings and discussion of the topics from the March Meeting within a Meeting are being published in a special supplement of the Journal of Dental Research called Advances in Dental Research, and it will be available in late October or early November 2023. This publication follows a special aging and oral health issue of the Journal of Dental Research that was published this past Summer. You can see a YouTube video featuring co-editors Bei Wu and Ana Paula Vieira and some of the authors on the IADR website, https://www.iadr.org/jdrspecialissue. Articles in that special issue span topics focused on research advances in many aspects of oral health for older people. These two IDR publications, along with the extensive information about the oral health of older adults in the 2021 NIH/NIDCR Oral Health in America Report: Advances and Challenges, provide excellent sources of information and references for anyone interested in this topic.

Karen Tracy:

Jane, could you explain to us the overarching objectives for this Meeting within a Meeting?

Dr. Jane Weintraub:

The Meeting within a Meeting had five objectives, I'll list these five.

1) Provide a broad overview of the concept of geroscience; how it is connected to biological mechanisms of aging and aging related disease, as well as how these associations impact health span, quality of life and oral diseases.

2) Provide a holistic overview of social and behavioral aspects of aging, particularly related to loneliness, social isolation, tooth loss, nutrition, and cognitive decline.

3) Propose research needed to improve the delivery of oral healthcare for aging populations

4) Encourage researchers who study aging to include oral health conditions and diseases.

5) Inspire dental, oral, and craniofacial researchers to study older adult populations.

Karen Tracy:

That is quite a robust set of objectives. Perhaps you can go a little bit deeper and provide us an overview of what happened during those three days.

Dr. Jane Weintraub:

It was jam packed three sessions of information. The Meeting within a Meeting was organized to cover the whole translational research spectrum in three sessions. Beginning with research illuminating biologic pathways, then behavioral and social aspects of aging and the effects on oral health and disease, and lastly research needed to improve the delivery of care among older adults. I'll tell you about those three sessions. In session one, our first speaker, Dr. Matt Kaeberlein, provided an overview of the concepts of geoscience and health span defined as disease free and functional health. Throughout life, scientists are now able to identify biologic processes called the hallmarks of aging that slow and delay the aging process and subsequently delay the onset and progression of multiple diseases, including oral conditions. The research goal is to target these precursor aging processes and develop interventions for early prevention approaches before various symptoms and diseases are detectable. This more holistic strategy has the potential for being more effective than current disease specific approaches.

In session one, speakers connected aging and oral health research. The common molecular mechanisms between oral cancer and aging were discussed. Research was presented that showed periodontal microflora as a potential factor in cognitive decline in Alzheimer's disease progression with clinical trials underway.

Session two focused on behavioral and social science aspects of aging and their oral health significance. In her keynote presentation, Dr. Carla Perissinotto provided evidence that loneliness and isolation have major health effects. These social conditions, along with poor oral health, tooth loss and cognitive decline could potentially affect healthy eating ability, avoidance of dining with others, and systemic health conditions in older adults. Research could help elucidate the directions and pathways connecting these seemingly disparate conditions. Dr. Perissinotto and Dr. Touger-Decker will share more about the significance of these processes. Also in session two, the relationship between poor oral health and poor cognitive function was discussed. Some studies show this relationship to be bidirectional. In some older age groups, the co-occurrence of diabetes and edentulism may accelerate the rate of cognitive decline. One can imagine a Venn diagram with three overlapping circles; labeled tooth loss, cognitive decline, and social isolation with aging at the center of these circles. Areas where the circles overlap can reflect behaviors and medical conditions such as avoidance of social eating, poor diet and nutrition, co-morbidities and disabilities, and periodontal disease and diabetes.

Session three, focused on the delivery of oral care in different settings and the many barriers older adults face to access to oral healthcare. Research is needed to identify and implement technology and effective strategy to improve access to dental care, including new delivery and financing mechanisms, workforce models, inter-professional provider education and collaborative practice, and the use of big data from medical, dental integration of electronic health records. Also in session three, Dr. D'Souza, the director of the NIDCR, gave examples of NIH funded research across the translational spectrum from basic mechanisms to dental practice-based research networks. The NIH has hosted several geroscience summits to advance research and research collaborations in this field with the fourth held this past Spring. Importantly, Dr. D'Souza said, "We need to bring benefits of geroscience to disadvantaged groups, the people who need it most, because they age the fastest, die youngest, and are unlikely to participate in clinical trials." I really liked that statement that she made.

Karen Tracy:

I was there and it was an amazing couple of days. I was incredibly impressed with the synergy of topics and the speakers. Jane, do you have any final thoughts to share with our listeners?

Dr. Jane Weintraub:

In summary, research to improve the oral health span, to reduce oral health disparities and to increase health equity, all must be tackled at all levels, from the molecular and cellular to healthcare systems and health policies. The Meeting within a Meeting identified exciting areas of connection across different disciplines where multidisciplinary and interdisciplinary research can provide new insights and ways to approach enhancing longevity and health. For example, controlling inflammation, one of the hallmarks of aging may lead to better oral health, which in turn may improve diet and nutritional status, which can increase social engagement and slow cognitive decline. We need to build on these connections. Appropriate measurements, documentation and research are needed to provide evidence to support individual and system level changes. We need data to monitor and assess progress towards improving the delivery of oral healthcare for older adults. Changes will require many dimensions and sectors. Our collective research, expertise, and advocacy efforts are needed so we can all maintain good oral health as we age.

Karen Tracy:

Thank you, Jane. That was quite a wonderful summary of the three days in Portland, Oregon last March. As Jane mentioned, there were many topics discussed during these three days, but for this podcast, we are hoping to delve into some of the behavioral and social aspects of aging and oral health, which at AADOCR focused on providing a holistic overview of these aspects, including nutrition and cognitive decline, and the relationship to oral disease. Dr. Perissinotto, you're invited by Jane to address the topic of loneliness and isolation in older adults, from a medical and public health perspective. Can you tell us a bit about your presentation and the E-A-R framework?

Dr. Carla Perissinotto:

Thanks much for having me. I have to say that I was delighted to be invited because I think at first glance, people working in aging and perhaps people separately working in dental research, you would not see the overlap. However, the more we delved into the session, we saw there's much synergy and opportunity for our fields to work together. We don't like to admit it, but we are all aging. This research really affects all of us. In many ways we discriminate against ourselves when we don't think about researching people who are aging. I chose to focus on loneliness and isolation because that has been my

research. My career is really seeing the effects of loneliness and isolation on health. This really comes from my work as a geriatrician; seeing patients and realizing that in medical training and in current medical practice, we don't often delve into other aspects of people's lives that affect our health.

This presentation was based on a 2012 paper that I published that demonstrated that among adults who are over the age of 60 who report any degree of loneliness, have an increased risk of mortality and an increased risk of functional decline. When you delve further into all of this, really across the health spectrum, and as Dr. Weintraub commented, it's really kind of a state of loneliness and chronic stress in our body that leads to inflammation, which leads to all the negative health outcomes. You look at all aspects of our health and body, be it cardiovascular disease, oral health, cognitive impairment, all-cause mortality, loneliness, and isolation are implicated. It's very significant. What I talked about is that the effects are so widespread that it is no longer okay for us as medical professionals to ignore what's going on.

This is why our country's Surgeon General just published an advisory in May of this year saying, this is a public health issue that affects all of us at all ages, and we need to focus on this. I spent a good deal talking about the evidence behind the health effects. As medical professionals, we want to fix things and we want to fix things right away. We don't always want to accept that things take time and that it's not always an easy solution. I presented some work that my colleague, Julianne Holt-Lundstad and I wrote about in the New England Journal of Medicine, where we proposed a framework for addressing loneliness and isolation or social connection more broadly in clinical settings.

What we propose is a framework called EAR. The idea of a listening ear, in that when someone is lonely or isolated, that's the first step is stopping and listening. The 'E' is to educate. What we mean by this is that as a first pass, and this is a basic public health tenant, and a basic principle is that we need to educate. That means educating our patients on the importance of social connection and the risks of loneliness and isolation. The second part of the framework is the 'A', which is assessment, which means that we need to assess whether someone is lonely or isolated using validated measures. There's more concordance on what to use for assessing loneliness while there's a little bit more discordance with what to use for isolation.

Across the board, regardless of how you choose what questions you choose to ask, we know that there are health effects. It's just important that we ask the questions, and we assess in clinical practice. The last part is the 'R', which is respond. We purposely chose to respond instead of referring. Very often, when medical doctors specifically find that there's something that they don't know what to do, they just refer it to someone else to deal with. Sometimes that's needed. But another part of that in my job as a clinician is responding, is just saying, I hear you. I am hearing and acknowledge that you're experiencing loneliness and isolation, and I want to acknowledge that that's affecting your health and we need to untap it and or we need to unpack that a little bit and figure out what's driving it. The response is really about what do we do next. I talked a little bit about emerging evidence, but also recognizing that there's more we need to do and more places to go.

Karen Tracy:

I just love the educate, assessment and response framework. I think it makes it easier to understand what the steps are that you need to employ.

Karen Tracy:

Dr. Touger-Decker, you were also invited by Dr. Weintraub to participate in the meeting. The topic she asked you to address was oral health and nutrition in aging. Can you tell us a bit about what you spoke to the attendees about?

Dr. Riva Touger-Decker:

Thank you for inviting me to this podcast and for inviting me to participate in the session. I've been looking at tooth loss or replacement and nutrition status in older adults for probably a good part of my career at our dental school. When I first entered the area, nutrition and oral health was not something people studied greatly, not something people discussed, and not what dentists were educated in. We started the whole concept of interprofessional education rather early. Nutritional risk factors in aging are multifaceted. We must consider the physiological, the socioeconomic ones, the psychological ones, which Dr. Perissinotto just brought up. Lastly, the neurological ones and the functional factors, which individually and negatively combine to affect appetite, diet and ultimately nutrition status in oral health. Concurrently oral dysfunction, whether it's pain and tooth loss, hyposalivation or replacement with dentures can cause difficulty biting, chewing, and swallowing.

We can see sensory and soft tissue changes like reduced saliva, xerostomia, an altered taste, which could be due to medications or other comorbid conditions. That difficulty eating in turn changes diet and nutrient intake. As a result, we see more social isolation, which leads to exactly what we just heard about. Diet restrictions that may occur due to chronic diseases, let alone the impact of cognitive decline, and economic functions can all compound those alterations in diet nutrition status. These negative impacts on lifestyle, nutrition status, and eating related quality of life increase our risk for malnutrition. Our research has shown that malnutrition risk increases in the presence of oral dysfunction. Almost all my research in this area has been with my colleague, Dr. Rena Zelig, where we've demonstrated that older adults who were either fully edentulous or without functional dentition are significantly greater risk for malnutrition than those with teeth or functional dentition after control.

We did one study where we found that after controlling for comorbid conditions, the odds of malnutrition were 46% lower for those with functional dentition. In every additional unit, an increase in the number of teeth was associated with 3% lower odds of being at risk for or having malnutrition. Those older adults with chewing problems are at almost twice the risk of malnutrition than those without. Not all patients are going to get dentures and certainly not be able to afford implants. That tooth loss in turn then impacts eating related quality of life. In one of our studies, we looked at older adults with tooth loss and how that impacted their social socialization and eating related quality of life. Those with tooth loss develop adaptive and maladaptive behaviors. In adaptive behaviors they go out, but they eat beforehand, or they go to restaurants where they know they can eat the food.

Those with maladaptive behaviors are very often those that increase social isolation because they don't go out or they go out and they don't eat, or they avoid certain foods. There is limited research on how we can reduce oral dysfunction. How do we solve the problem? How do we reduce oral dysfunction, improve eating related quality of life and nutrition status in this older population? Every time we further impact one, it impacts the other two and we end up in a vicious cycle. We need to stop functioning in silos and work together as registered dieticians, nutritionists, with oral health professionals, geriatrician, and others to treat patients' older adults with tooth loss.

Dr. Jane Weintraub:

I really like that last comment that you made about how each of us in our different professions have traditionally worked in silos, but now here we are in the same program, and we were at the same meeting and you're a registered dietician nutritionist doing research, and Carla's a geriatrician. I'm a public health dentist, and we found many connections among the work that we're doing in oral health, nutrition, and loneliness and social isolation. We need to develop these connections and learn about how we can work more together.

Dr. Riva Touger-Decker:

Thank you, Jane. Listening to Carla's presentation, we see that if dentists can work with dieticians, nutritionists, and physicians in the area, and listen and understand each other, we can learn how to work together to treat these patients rather than constantly referring them out and them never getting the treatment they need. We need to work together to do research to determine how we treat the patients who may never get dentures, who are going to live their lives with tooth loss, either because of preference or because of economics. We need to have clinicians who can treat together, but also researchers who can jointly research the area.

Dr. Jane Weintraub:

As clinicians, dentists need to ask patients about loneliness and social isolation. They need to ask if they're having trouble eating or if they're avoiding eating certain foods or avoiding eating with other people. These are important things that we can add to our protocols. The same thing applies to your profession to ask people about their oral health. When was the last time they went to a dentist? Do their gums bleed when they brush their teeth? Do they have a toothache? If you just ask those three questions, you can go a long way to find out what their oral health needs are.

Dr. Carla Perissinotto:

I just had a mentorship meeting with a young new faculty, who asked, “what do I do to move forward to advance my career?” Participating in this conference is an example of what I suggested. I advised that she expand outside of her circle, expand outside her discipline. I was lucky to be amongst your group because I have been aware of the health effects of loneliness and isolation, and it was no surprise in some ways that oral health was a part of that. But I hadn’t really thought about the idea that poor oral health was making people more isolated because of the embarrassment. Dr. Touger-Decker that you talked about. It's obvious, but I hadn't stopped to think about that.

If I only stuck in my little circle and only hung out with other geriatricians, I would not have realized the full landscape of research potential, and ultimately what this causes for our patients and their lives. Another big part of this, which is probably in need of another session at another time, is policy implications; the idea that dentures are not covered and how expensive oral care can be. It's really thinking more broadly again about how we address this at a national level.

Dr. Jane Weintraub:

It's especially an issue because Medicare does not cover routine dental services.

Dr. Carla Perissinotto:

That's exactly right.

Dr. Riva Touger-Decker:

In that same vein, unless you have diabetes or kidney disease, Medicare does not cover seeing a registered dietician/nutritionist.

Dr. Carla Perissinotto:

It falls on the primary care physician with all the time that we have. That's what we've been told.

With your seven minutes per patient.

Dr. Riva Touger-Decker:

I think it's all of us asking about those features. When I moved into the oral health arena, which was when I did my dissertation research, I considered, why don't dieticians look in mouths? How didn't we know how to do that type of physical exam? But then when I started working in the dental school, I wondered, why don't dentists ask about diet? It's really looking at the synergy between the two and asking, how do we work together and involve physicians so that we're all working in synchrony with each other? In the end, that will cut down on the amount of individual care time and likelihood of the number of individual appointments because patients are getting better treatment.

Karen Tracy:

Dr. Weintraub, Dr. Perissinotto and Dr. Touger-Decker, thank you for joining me and sharing all that you and your colleagues are doing for oral health research with older adults. Your commitment, expertise, and passion were apparent from our discussion today, and we were honored to have you on our podcast. Today we learned that synergy among all disciplines is essential from a research perspective, from an advocacy perspective, and from a practice perspective, to improve the oral health span of older adults. Thank you also to those listening to this episode of the GSA Momentum Discussion podcast. We hope you found it informative and enjoyable. GSA has a section on our website with numerous resources on oral health. It's at www.geron.org/oral health. This Momentum Discussion will be in this section of our website, along with a transcript.

The Journal of Dental Research Specialist supplement called Advances in Dental Research will be available soon. We'll include that link on our site as well, and the special aging and oral health issue published this past Summer. We'll also have a link on this page. Thank you very much and stay well.

Announcement:

To learn more about the Gerontological Society of America, visit Geron.org. The Gerontological Society of America was founded in 1945 to promote the scientific study of aging, cultivate excellence in interdisciplinary aging, research, and education to advance innovations in practice and policy. For more information about GSA, visit Geron.org.