Analyzing risk factors using AI – an interview with Dr. Ana M. Wägner

Alba Ramírez Sánchez

As entire populations around the world slowly reoccupy the streets after months of uncertainty, medical staff face the traces of a still latent pandemic. Months' worth of diagnoses regarding chronic illnesses have gone unnoticed due to a lack of advancement of the healthcare system to adjust to the digital lifestyle. The Journal of Young Investigators had the privilege to chat with Dr. Ana M. Wägner, here main collaborator in the European project "Watching the Risk Factors (WARIFA)", which aims to break the virtual barrier in healthcare by providing individualized early risk prediction using AI.

Dr. Ana M. Wägner is currently an Endocrinology and Nutrition Specialist at the Maternal-Infant University Hospital Complex in Gran Canaria, as well as a professor of Health Sciences at the University of Las Palmas of Gran Canaria (ULPGC). Looking at her professional trajectory and having worked as an endocrinologist for nearly two decades, her role as a medical consultant at WARIFA comes as no surprise. "Watching the Risk Factors" is a Horizon 2020 financed project that merges both artificial intelligence and medical evidence to accurately prevent chronic conditions. An early prediction AI model, which intends to provide individual early risk predictions for individuals and preventive measures for a healthier lifestyle, is currently under construction. "My role at WARIFA is to identify risk factors in the diagnoses of diabetes. There is a huge importance in these factors being relevant, so that they can contribute to the model's predictive accuracy", explains Wägner.

Before embarking on this project, Wägner graduated from ULPGC with a degree in Medicine. "I was torn between pursuing an engineering degree or a career in medicine. I guess I have always been a curious person, and both disciplines complemented that treat nicely. However, I ended up choosing medicine, and I am extremely happy I did, as engineering would not have given me the one-to-one connections medicine does'', Wägner expresses. Soon after completing her MIR exam (Internal Medical Residency exam), she specializes in Endocrinology at "the Hospital de la Santa Creu i Sant Pau, Barcelona". "This institution already had a long history of diabetes, and so doing my doctoral thesis in diabetic dyslipidemia felt natural", Wägner notes.

After completing her residency and spending nearly four years as an adjunct doctor in Barcelona, Wägner was offered a role in the Type 1 Diabetes Genetics Consortium (T1DGC) at Steno Diabetes Center, Denmark, where she spent four years as a project director. Wägner notes that

"prior to this experience, my work mostly focused on Type 2 diabetes. During my time in Barcelona, some of my research work on this topic got some recognition. However, it was not until I moved to Copenhagen that my main focus changed to Type 1".

In 2007, Wägner returned to Gran Canaria and she has since continued to study the etiopathogenesis of type 1 diabetes. In this area, she leads a research group at the ULPGC University Institute of Biomedical and Health Research (iUIBS), while also exercising as a healthcare professional and associate university professor. Her work with diabetes covers psychological factors associated with adherence to self-care behaviors amongst patients to gestational diabetes. "Gestational diabetes is a topic that I have always worked on, and I continue doing research on it nowadays", Wägner expresses. Now, she adds her collaboration in "Watching the Risk Factors" to her list of inputs to the medical field.

WARIFA mostly focuses on three possible scenarios: Chronic sun damage and skin cancer, diabetes mellitus, and the role an unhealthy diet, physical inactivity, tobacco use and harmful use of alcohol play as the most important risk factors in noncommunicable diseases. For delivering prevention and early risk detection information, a smartphone application is being designed. This interface is meant to be simple and intuitive, targeting a wide audience. In general, the application collects data introduced by users, including blood sugar levels, sun exposure, family history and lifestyle measures to analyze risk factors in the scenarios contemplated. This data is analyzed from medical, sociological, and behavioral points of view, allowing the AI model to contemplate the entire framework prior to deliberating. The application also aims to recommend healthier life practices.

The perspective Wägner has on this project is that of a cycle: "once we, the medical professionals, identify which risk factors are relevant, we communicate them to the team in charge of designing the predictive AI model. The data is introduced in the system, and the model is later tested by patients. Once we receive feedback from this process, we analyze what is and isn't relevant, and adjust accordingly, starting all over again". Additionally, "the most challenging part of this project is making sure not only that the information introduced in the system is accurate for the model to be effective, but that this information is presented in such a way that patients, and users in general, find it engaging and relevant. The final goal of this project is for people to find the app easy to use and trust its results and indications".

WARIFA started its journey earlier this year, and Wägner explains how "there is still a long way to go". "We have many goals in mind, but we are positive that the outcome is going to be great". The project is aimed to be completed at the end of 2024.

Reflecting on her own professional career, Wägner expresses the importance of following a career path where passion is the main motor: "passion is the most important factor when it comes to pursuing a path like mine. At the end of the day, research may not be the most profitable field, so if you are going to spend hours and hours studying the same topic, you must be passionate about it".

"Watching the Risk Factors" is one of the many steps the healthcare system needs to take to surf the virtual wave and help assess risk factors in the prevention of chronic illnesses. Although the journey ahead might be long and challenging, professionals like Dr. Ana M. Wägner are taking the reins of this digitalization and embarking on projects that are key in preventing poor health habits and promoting early intervention for citizens.