Social determinants of health are defined as nonmedical factors that influence health outcomes such as conditions in which people are born, grow, live, work and age (CDC, 2024). These factors are often outside an individual's immediate control and can create barriers to achieving good health. The access an individual has to education, healthcare and the quality received, all vary depending on their economic status as well as social and physical environment (Cleveland Clinic, 2024). Individuals face different social determinants of health and Londrina and São Paulo both addressed health equity but in different ways depending on the geographic and institutional context. Many health promotion programs have different purposes, funding, resources, and populations they serve, which influences how they approach health promotion. The areas explored in Londrina and São Paulo focused on different populations and health concerns but they both shared the goal of reducing barriers and improving health outcomes through resources and support.

In Londrina, the health promotion programs that addressed health equity focused on the community around the institution such as elderly women and women who had survived cancer. The social determinants of health that were addressed in both Londrina programs are access to physical activity, healthy behaviors, income and social environment. The two research projects from the Universidade Estadual de Londrina(UEL) were named Exercise Training in Women With Metastatic Breast Cancer and UEL Strength Training Program for Older Women. Both programs demonstrated how research can be used to promote health while providing community members with opportunities to improve their physical and mental health.

The UEL strength training program for older women conducted a research paper titled "Effects of Different Resistance Training Frequencies on Body Composition, Muscular Strength, Muscle Quality, and Metabolic Biomarkers in Sarcopenic Older Women". Many of these older women were recruited for this research by newspaper or radio advertisements or by friends who encouraged them to participate. The qualifications needed to be able to participate in this research program were sarcopenic older women aged 60 years or above, be physically independent, not receiving hormone therapy and no orthopedic conditions that limits them from performing the exercises (Dos Santos, 2024). This program was produced to show the connection between weight training and the decrease in reduced muscular strength and muscle mass in older women who are often susceptible to developing sarcopenia due to aging. During this experiment, the elderly women were assisted in weight exercises while also being assessed on the amount of weight they could lift, repetitions they could do and their muscle quality after strength training. There were about six different stations throughout the gym that focused on areas such as bicep, leg, and tricep strength. The participants rotated through each station while the student researchers recorded the number of repetitions they were able to complete, as well as the amount of weight they were able to lift. Aging, illness, and changes in mobility can contribute to social isolation, making opportunities like this very meaningful because it provides an opportunity to socialize with the community. The design of this program seems to follow a health promotion approach that focuses on physical activity, prevention, and providing people with the resources and support needed to improve their own health. The program also

demonstrates the importance of accessibility because older adults may face financial barriers to gym memberships or lack knowledge about how to safely begin strength training. This addresses the area of economic stability and built environment from the social determinants of health. Having a structured and supervised program makes physical activity more accessible while also creating a supportive environment where older adults can improve their overall health and quality of life.

The Exercise Training in Women With Metastatic Breast Cancer at UEL focuses on the effects of exercise on physical function, physical fitness, and body composition on patients with metastatic breast cancer (Veeva Systems, 2026). This study is still in process and does not have any finalized results at the moment. This research purpose is to examine if exercise preserves physical function, reduces side effects and improves quality of life of patients who are diagnosed with cancer. This is an important concept to understand because many people believe that maintaining rest and not being as active helps improve their symptoms but in reality, exercise seems to be helping many patients in maintaining physical strength and muscle tone which provides them a better life quality. The criteria to be considered for this study is to be a female, older than 18 years, have a confirmed diagnosis of stage IV (metastatic) breast cancer, getting medical treatment, medical clearance to perform physical activity and voluntarily agree to participate in the study(Clinicaltrials.gov). This program addresses social determinants of health and health equity by providing participants the choice to join a free supervised exercise program with guidance on how to perform exercises safely to prevent any injuries, with exchange to be able to gather data from them for the research. This demonstrates how UEL uses research not only to develop new knowledge but also to provide health-promoting opportunities to members of the community who may have specific health needs.

These two programs address social determinants of health because access to safe and supervised exercise may not be equally available to every sick elderly person. Factors such as income, access to exercise facilities, knowledge about safe physical activity, and social support can affect whether a person is able to remain physically active during treatment or not. By providing participants with supervised exercise through UEL, these programs create an opportunity for women to participate in physical activity regardless of some of these barriers. The group environment can also provide social support by connecting women who may be experiencing similar challenges related to their diagnosis. This demonstrates that improving health outcomes involves more than treating the disease itself and can include addressing the environment and resources available to patients.

In São Paulo, I noticed that health equity was addressed differently because the programs we observed focused on the needs of a larger and more diverse urban population. One example was the HIV reference center, where health promotion involved not only treating HIV but also addressing factors that can affect a patient's ability to manage the condition. Some of these factors include socioeconomic status, stigma, access to healthcare, education, and medication adherence. The HIV reference center provided many resources to patients such as counseling, medical services and even dental services. Brazil was also the first middle-income country to

provide free and universal access to AIDS treatment (Tancredi,2014). This treatment included access to highly active antiretroviral therapy (HAART) which provided better survival rates for patients living with HIV/AIDS. The services provided by the HIV reference center demonstrate how addressing social determinants of health requires looking at more than just the patient's medical diagnosis. Providing free treatment for this diagnosis can help reduce financial barriers for individuals who may struggle to afford HIV medications and other healthcare services. Counseling can provide education and can also help patients better understand their condition, maintain medication adherence, and receive support when experiencing challenges related to their diagnosis. The availability of multiple healthcare services in one location can also make it easier for patients to receive more comprehensive care. This is important for individuals living with HIV because stigma, financial barriers, and differences in access to healthcare may discourage individuals from seeking or continuing treatment. By addressing some of these barriers, the HIV reference center promotes health equity by providing patients with resources and support based on their individual health and social needs.

In both Londrina and São Paulo there are engraved/textured paths on the sidewalks that are meant to help guide blind and visually impaired populations. This is something that definitely improves health as it prevents less injuries and provides safety and guidance to visually impaired populations when navigating public spaces. This is a great example of how health can be incorporated into the physical environment without necessarily involving a healthcare facility. The physical environment is considered a social determinant of health because the conditions of the places where people live and spend their time can influence their safety, independence, and overall health. Without these accommodations, individuals who are blind or visually impaired, may experience additional barriers when trying to participate in everyday activities. Health equity is demonstrated because the environment has been adapted to meet the needs of individuals who may require additional accommodations to safely navigate their community. Seeing these paths in both cities showed me that promoting health does not only involve treating illness but also creating environments that are accessible and safe for different populations.

The geographic differences between Londrina and São Paulo influence the populations being served and the health needs that programs focus on. Londrina is a smaller city, and the programs at UEL appeared more community based and focused on specific populations, such as older women and women with cancer. São Paulo is a much larger urban environment with a more diverse population and greater differences in socioeconomic conditions. The programs and institutions observed in São Paulo addressed more complex issues such as HIV, stigma, treatment adherence, and differences in access to resources. These differences do not mean that the same health concerns are absent in either city, they demonstrate how geographic context and community needs can influence the priorities of health promotion programs. This demonstrates that health promotion cannot look exactly the same in every community because each population experiences different barriers to health.

Institutional context also influences how health equity is addressed due to different institution goals, resources and community. UEL is a public university, so many of the programs

observed combined student research, education, and community health promotion. Its programs provide opportunities for students to participate in research while offering community members access to supervised physical activity. The HIV reference center in São Paulo is a specialized healthcare institution, so its resources are directed toward the specific medical and social needs of people living with HIV. Instead of mainly focusing on research, the center provided services such as medical care, counseling, education, and dental care. These services help address different needs that can affect a person's health and ability to manage HIV. Even though UEL and the HIV reference center provide very different services, both institutions work toward improving health equity. Both institutions promote health equity, but they do so differently based on their purpose, available resources, and the populations they serve.

Health equity does not mean giving every population the same intervention but it means recognizing the different social and environmental barriers affecting each community and providing resources that help with those barriers. The health promotion programs observed in Londrina and São Paulo demonstrate how institutions can improve health outcomes through different approaches. UEL is a public university in Londrina that uses research, students, education, and community programs to promote health. In São Paulo, healthcare institutions can provide more specialized services that focus on the medical and social needs of specific populations. The accessible sidewalks observed in both cities further demonstrate that health promotion extends beyond healthcare institutions and into the environments where people live. These differences show that providing healthcare access alone is not enough to address all social determinants of health. Health promotion also considers the different barriers that people experience in their everyday lives. Londrina and São Paulo show that health equity can be approached in different ways while still having the same goal of giving people the resources and support they need to improve their health.

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