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Integrating Cultural Humility Within the Health Belief Model: Application to A Diet and Exercise Intervention for Hispanics Low-Income Older Adults with Type 2 Diabetes

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Received: 20 August 2020; Accepted: 16 September 2020

Citation: Gaillard T, Vaccaro JA, Caceres S, et al. Integrating Cultural Humility Within the Health Belief Model: Application to A Diet and Exercise Intervention for Hispanics Low-Income Older Adults with Type 2 Diabetes. *Nur Primary Care*. 2020; 4(3): 1-7.

ABSTRACT

Introduction: Cultural humility is a patient-centered approach that involves reflective listening and awareness of personal cultural biases. The Health Belief Model was integrated with cultural humility to deliver a patient-centered diabetes and exercise intervention.

Purpose: The purpose of this manuscript is to discuss how cultural humility was implemented into a diet and exercise intervention aimed at assisting low-income Hispanic older adults with type 2 diabetes formulate, reach, and maintain diet and exercise goals.

Methods: Thirty-nine older Hispanics with type 2 diabetes (78.5±6.6 years) participated in the study at three congregate meal sites serving primarily Spanish speaking older adults. We modified evidence-based diabetes education materials and translated/back-translated into Spanish. We piloted these materials and made adjustment to the intervention based on process evaluations from participants and feedback given by the staff.

Results: We became aware of our own ethnocentrism regarding diet and exercise and made modifications of the intervention based on cultural humility: listening to participants through process evaluations. We actualized our cultural humility by re-teaching using client-centered strategies. We made modification in the program based on what participants needed to become successful. We discovered that older Hispanic adults wanted more individualized instructions based on their specific diet and exercise preferences as compared to group instruction.

Summary and Conclusions: To teach, reach, and retain participants, we recommend that diabetes educators incorporate cultural humility when planning community-based lifestyle intervention programs targeting older Hispanic adults. Most importantly, team meetings to review clients' responses became important in updating and evaluating the program.

Keywords

Diabetes educators, Diabetes self-management behavior, Cultural humility, Health Belief Model, Hispanic/Latinx older adults.

Introduction

Diabetes self-management skills and behaviors are critical

for achieving glycemic control, preventing complications and improving health outcomes. Key components of diabetes self-management include knowledge, healthy nutrition, and regular physical activity and glucose monitoring. Diabetes is a complex disease that requires following recommended health behaviors (self-management). Hispanics have a higher prevalence of diabetes,

poorer diabetes self-care, and more complications as compared to non-Hispanic Whites [1]. Effective self-management of diabetes requires the performance of key health behaviors in the area of diet, exercise, and medication use. Following these recommended behaviors presupposes alliance of health beliefs with the health care system which may not be congruent with these health behaviors. Ethnicity and culture are significant factors that influence health beliefs and behaviors [2]. Williams [3] characterized ethnicity as a complex construct that is the result of the interactions of culture, racism, geographic origin, environmental factors (political, legal and economic) and biology. Culture is associated with influencing the acceptance of health messages because its construct has been associated to shared values, beliefs and practices [4]. Although knowing a person's culture and ethnicity does not predict their health beliefs and behaviors [2,5] health care aimed at reducing health disparities is modified to meet patients' social, cultural and linguistic needs [6].

Health care that is culturally and linguistically tailored to the target population, culturally competent health care, is recognized as an essential means of reducing racial and ethnic health disparities [6]. Similarly, cultural competency is essential in delivering effective educational interventions for diabetes management. Cultural competency has been broadly defined as a set of harmonious values, principles, attitudes and policies that enable people to work effectively across cultures. Cultural competency in health care includes tailoring the health message to meet the patients' social, cultural, and linguistic needs [6].

Awareness of how culture impacts health behaviors are important for health care providers and is considered the first step toward providing sensitive and competent diabetes education. The Health Belief Model (HBM) includes the broad constructs of the individuals' perception, modifying factors and the likelihood of action. This model has been redeveloped from the original model of Becker and Maiman (1975) with cultural humility added and applied to low-income, older Hispanics with type 2 diabetes [7] (Figure 1). The cue to action is the area that health education can influence the individual's health beliefs as to the severity of the disease and their susceptibility. The benefits have to outweigh the barriers for individuals to act on the health behaviors needed to control their disease. Cultural humility has been regarded as a method whereby the investigator recognizes their own cultural biases and actively listening to participants [8]. The health educator, after self-reflection, applies an 'other oriented' approach to understanding the cultural identity that is most important to the particular individual [8]. The application of cultural humility into diabetes education interventions has been indicated as an essential component of an effective program, yet specific mention of its use is lacking in the literature [9]. The process of incorporating cultural humility as an ongoing training in our study is depicted by Figure 2. The specifics of how these models were developed are presented in the results.

It is well documented that diabetes self-management skills and behaviors are critical for achieving glycemic control, preventing

complications, and improving health outcomes. Key components of diabetes self-management education include knowledge, glucose monitoring, healthy nutrition, and regular physical activity and review of medications. Diet and exercise have been indicated as the main barriers for diabetes care for the majority of people in the United States with type 2 diabetes [10] and Hispanics/Latinos have lower adherence to these diabetes self-care recommendations [11]. Health disparities for Hispanic/Latinos in diabetes prevalence and outcomes have been attributed to low adherence to the diet and physical activity and diabetes self-management recommendations of the American Diabetes Association Standards of Care [12]. Data from the National Health Interview Survey and the Third National Health and Nutrition Examination Survey indicated that Hispanics/Latinos had lower levels of leisure-time activity than non-Hispanic Whites, and 34.6% of Hispanics and 40% of Mexican Americans reported no leisure time physical activity [13]. Furthermore, many Hispanic/Latinos consume diets that are higher in carbohydrates and refined sugars and thus could benefit from educational interventions focusing on diet and physical activity [14].

Developing and implementing effective interventions to improve diabetes self-management among Hispanics/Latinos requires a sensitivity and awareness of culture as well as cultural norms and health beliefs of the investigators as well as the participants. However, few studies have focus on expanding the health belief models to include cultural humility [8,15]. Thus, the purpose of this study is to discuss the lessons learned on how to integrate *cultural humility* into the Health Belief Model for a diet and exercise intervention aimed at assisting low-income older Hispanic adults with type 2 diabetes reach and maintain diet and exercise goals.

Methods

Study Design and population

This was a process observation study of the characteristics of older Hispanic adults (mean age 78.5±6.6 years) attending congregate meal sites who agreed to participate in a diabetes lifestyle management including diet and exercise. The study occurred over the course of delivery and evaluation (process evaluation) six months at each of the three intervention sites – diet and exercise, diet only, and control – assessments only from 2019 to 2020. The study was terminated before completion due to COVID-19 pandemic to ensure the safety of participants and the intervention at the fourth site, exercise only, was not conducted. These observations were made at three sites and we were able to complete six months for diet and exercise, six months for control and six months for diet only (without a final assessments). There was a continual process of observing the interaction of the research assistants with the participants by the co-investigators. After each weekly session, the research assistants met with the co-investigators and were retrained in cultural humility.

Inclusion criteria: 1) Have T2DM confirmed by hemoglobin A1C (A1C) and blood glucose testing; 2) Age ≥60 years; 3) Score ≥3 on the *Mini Cognitive Screener* [16]; 4) Score ≥17 on the *Mini Nutrition Screener* (MNS) [17]. Malnourished seniors

were referred to the site's social worker to be referred for medical treatment.

Exclusion criteria: not willing or not able to exercise in standing position due to medical issues or physical limitations (e.g. wheelchair-bound); malnutrition; on dialysis; with liver disease, cancer, HIV/AIDS, or other physical/psychological condition preventing participation. In addition, participants who were found to have A1C>8.5% during the baseline assessment were referred to medical care for safety reasons. After screening $N=39$ participants qualified and had baseline measures. The study was approved by the institution's Internal Review Board (IRB). All persons screened signed an informed consent form.

The research team included primary staff (a physical therapist (Hispanic descent); a registered dietitian (European ancestry, minimal speaking and understanding of Spanish); and a registered nurse (African Ancestry). All educational interventions were delivered in Spanish by research assistant students in their respective disciplines. We modified evidence-based diabetes education materials and translated them to Spanish. We piloted these materials and made adjustment to the intervention based upon formative and process evaluations from participants. This led to the development of additional training of the research assistants focusing on cultural humility, using client centered strategies and updated diabetes information felt necessary for participants to understand the importance of the intervention.

Results

We learned self-awareness of our own ethnocentrism regarding diet and exercise and made modifications of the intervention based on cultural humility: the humble and respectful attitude toward individuals of other cultures that pushes one to challenge their own cultural biases, it includes listening to participants through formative and process evaluations. Thus, the research team which included primary staff made adjustments in the delivery of the educational content and the training of staff in cultural humility. We discovered that participants did not like group instructions because they were being critiqued by their peers. It was observed that in a group setting there was much criticism among peers that was disagreeable to some participants. Instead participants wanted individualized diet and physical activity guidance. This information was shared by research assistants (students) during team meetings. We believe that this was based on the individualized as well as differences in the various Hispanic cultures as well as the age of our participants in our group. Table 1 displays the major themes or initial comments expressed by the research assistance in the current study during team meetings. The probes to obtain additional information by the research staff is also included. During team meeting the research assistance were asked to introspect on the reasons for expressing those answers. Finally, we provide redirection of the staff to address the research assistances. We found that this constant reflection and reevaluation of culture to be necessary in the current study. It was observed that even within the Hispanic/Latino cultural there was great diversity among our groups with regards to dietary and nutritional practices. Thus, the dietary

intervention was modified to provide individualized instructions based on cultural and familiar eating values and norms, specific to that culture. The nutrition research assistance showed pictures of specific cultural foods and the participants discussed different preparation practices. The physical activity portion was held in a group setting but also included individualized instruction for activity to be done in the home setting. This was more acceptable by the group. Culturally humility, as provided by the current study, is shown in Figure 1. Providing additional training explaining the difference between cultural competence and culturally humility afforded the staff understanding and acceptance of group dynamics occurring in our intervention. We found that our young research assistants, who were all of Hispanic descent had preconceived notions of the participants based on their own cultural values, norms and health beliefs. These findings led to the restructuring of our classes to include more individualized dietary instructions so that participants did not feel intimidated by others in the group.

Figure 1 depicts how cultural humility was incorporated with the Health Belief Model in the current study. The Health Belief Model includes individual perceptions of the disease, their level of susceptibility and vulnerability to diet, physical activity and mobility to controlling diabetes. The research assistants needed to be trained to become aware that just because the participants were susceptible to losses of mobility and nutrition, they may not feel vulnerable. Cultural humility was applied by the research assistants when they realized their own preconceived beliefs of the participants' vulnerability were separate from the beliefs of the participants. Factors that affect health beliefs and health behavior are socioeconomic and demographic characteristics, perceived vulnerability of diabetes complications, as well as the cue to action to self-management. The research assistants learned to listen to the participants' needs, make the adjustments in the delivery of the lessons and provide encouragement. Thus, diabetes self-management education as a 'cue to action' was modified based on feedback received by the research staff. Finally, their likelihood of action for making the health behavior changes in diet and exercise depended on their perceived benefits outweighing their perceived barriers to diabetes self-care.

In the current study we found that participants felt adjusting diet and exercise was a little troublesome and that many were not willing to make many changes. In addition, individuals did not mind group classes but wanted individualized instructions on what to eat and how much to eat. Finally, it was a barrier to share their specific food preferences due to critiques of other members attending class.

Figure 2 depicts how the current intervention was modified to address cultural humility. The research staff conducted training in culturally humility, the client centered strategy of active listening to others and reflections on our personal ethnocentric stereotypes. The research intervention was modified to include these factors. We evaluated participants during exit interviews on how to improve the intervention. We also developed strategies on how to address comments that were not reflective of positive changes,

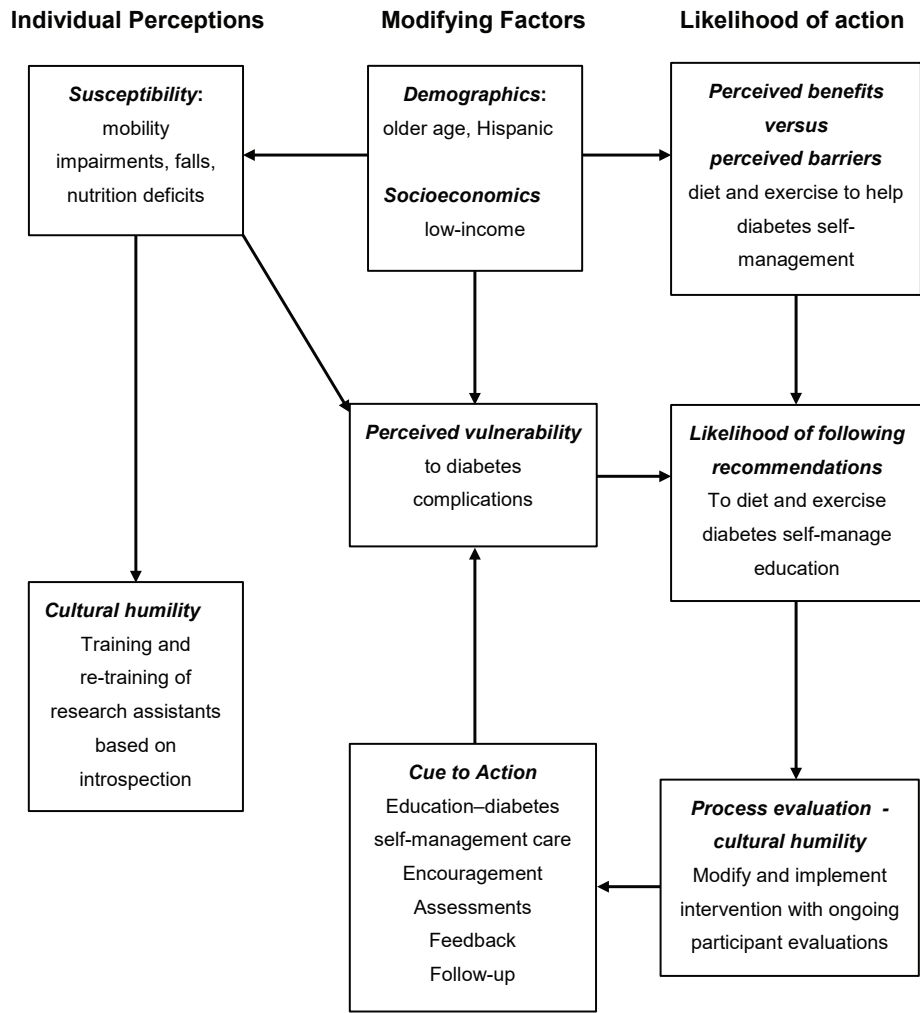


Figure 1: Health Belief Model with Cultural Humility.

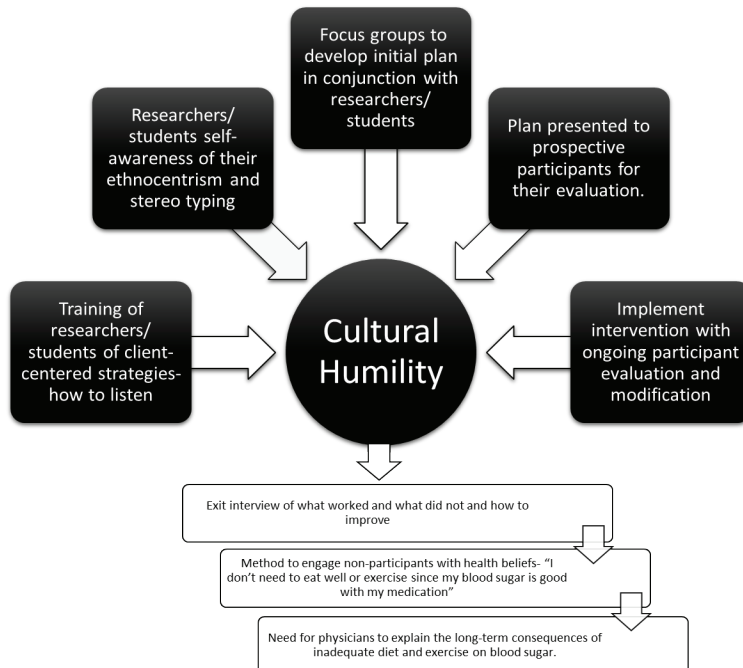


Figure 2: Cultural Humility.

Initial comments	Probe	Introspection	Redirection after introspection
I feel like they are my relatives.	How does that make you feel in terms of your role in collaboration for dietary change?	I feel like a kid and why would they listen to me.	Realize that you are the expert and not a child. They are not your relatives. You have the knowledge to help them. Now how do you feel about collaboration?
I feel bad that she can't do the exercises and that she told me she feels bad.	How does that make you feel in terms of your role in collaboration for engagement in physical activity?	Well, I told her to do what she could. I guess I could have encouraged her to try with my help.	Realize that she can do more than she thinks. You are an expert in physical activity. Now what can you do to help her?
They are so used to eating a certain way and really don't want to change.	Realize that they volunteered to receive diet lessons. Why do you think they don't want to change?	I guess because I know a lot of older Hispanics and they are set in their ways.	What positive things can you say about their current diet to encourage them? What small changes are they willing to make? Are you willing to accept your stereotypes and move forward to help?
Will they do these exercises at home? Some of them are too weak and can fall.	What could you do to help them do some of the exercises safely at home?	I don't feel qualified to help them.	What could they do at home and still be safe? Each person has different abilities and limitations. Do you feel comfortable having an open discussion on their fears, asking for help from the team and then directing them?

Table 1: Cultural humility operational: examples of introspection and redirection.

although respecting participants beliefs regarding diet and exercise in the importance of diabetes management. Finally, we also need to address how health care providers need to emphasis the importance of lifestyle changes in the management of type 2 diabetes.

Discussion

In the current study, we reexamined the importance of cultural competency but also the need to include cultural humility when working with older culturally diverse Hispanic/Latino adults with type 2 diabetes. This study is the first to report the need to go beyond cultural competency, but to also include cultural humility and make adjustments in the interventions from initial design, during the intervention as well as exit evaluations. We initial designed our intervention to include Spanish speaking students who were trained to deliver the intervention by the research investigators. This strategy has been developed in studies that have used Promotoras de salud or Spanish speaking “community health workers” to deliver diabetes education [18].

Project MATCH (**M**exican **A**merican **T**rial of **C**ommunity **H**ealth **W**orkers) a clinical trial designed to test the effectiveness of an intensive, promotora-based intervention to improve disease self-management for Mexican-Americans with diabetes demonstrated the benefits of ongoing training of the staff delivering the intervention [18]. In the current study, co-investigators were available at all aspects of the intervention. We found that research assistants (students) often relayed that they did not want to disrespect the participants, because they felt that they were “their grandparents” or what Caballero (2011) describes as “familismo” or family, which is a very important aspect in Hispanic/Latino culture [19].

Our research assistants, although knowledgeable of the topics had to be supported in the content that they delivered. As the co-investigators we had to encourage research assistants that they had the knowledge and tools necessary to deliver the intervention. Furthermore, we provided evidence-based diabetes educational materials translated into Spanish. We found that these materials

were acceptable for general instructions, but our participants wanted more individualized dietary instructions that included foods from their specific culture. In addition, they wanted specific instructions of what to eat, how much to eat as well as the times to eat each meal. During classes we found that many of our participants criticized their classmates about their eating habits. Although our Spanish speaking research assistants were from the same cultural backgrounds, they did not feel comfortable correcting their older Spanish speaking adults: This was primary due to culturally norms and beliefs of not criticizing or correcting their elders.

This finding has not been demonstrated in other studies and may be generational; our participants were older than most populations in diabetes education and prevention programs. Thus, the faculty and staff intervened immediately, by using cultural humility, and listened to the participants in the study. We adapted our education to include additional one-on-one educational consultation to provide individualized and specific dietary and nutritional instructions. We found that this was more accepting to the participants. In addition, it reinforced the vast diversity of Hispanic culture, and the differences in traditional foods among various counties in Latin America. Finally, our study provided an ongoing opportunity for assessing and improving our cultural humility skills and to address the needs of our population during the intervention.

The American Association of Diabetes Educators has always emphasized cultural humility as important in delivering diabetes self-management education to racial/ethnic groups, moreover this is a paramount feature of certified diabetes education care specialist [9].

In the current study, we adapted many of the suggestions provided by this group, such as acknowledging cultural perceptions and differences among our group, providing accurate information and discussing misbeliefs and perceptions regarding nutrition and physical activity, and utilizing educational materials and resources appropriate for culture, age, literacy level [22].

Furthermore, the Office of Minority Health has developed the

National Standards for Culturally and Linguistically Appropriate Services in Health and Health Care (2016) which are intended to establishing a blueprint for health and health care organizations to implement culturally and linguistically appropriate services to ethnic diverse populations [20]. These guidelines assist healthcare professionals to understand the importance of culture and health beliefs and provides examples of how to include in health care. The needs of older adults, specifically, the needs of ethnic diverse older adults must be addressed in a culturally competent and sensitive manner and must also include cultural humility.

If practitioners fail to understand cultural influences, many older adults will suffer unintended negative health outcomes. Thus, our research team adjusted our intervention to assure that individuals felt safe and comfortable sharing their experiences as well as addressed their individualized preferences. We also, stress to our research team the importance of sharing this information with each other to assure the integrity of the study and the participation of the participants.

Limitations

Several limitations of this study should be noted. The sample was from low income, Spanish speaking congregate meal site that serves Hispanic speaking older adults. Thus, the results of this baseline data cannot be generalizable to the general population. Additionally, it is often assumed that Hispanics/Latinos are a demographically and ancestrally homogeneous group. We found in our study, our participants were from various counties in Latin American, Cuba, Puerto Rico did not include Mexican Americans, of which many of the studies on culture include. Moreover, our population included older adults with type 2 diabetes, many of the studies of diabetes are reported in a population much younger than the current study.

Furthermore, the small convenience sample in the study might limit the generalizability of the findings. In addition, we are the first to report that our research assistants initially, felt uncomfortable correcting their older “familismo” or grandparents [19]. Thus we highlight the importance of co-investigators in providing team support for the study and the need to discuss the importance of cultural humility. Nevertheless, our study provides insights into how important it is to assess the individualized needs of older Hispanic/Latino older adults regarding their understanding and self-management and education barriers. Thus, differences in ancestry, socioeconomic factors, cultural norms, dietary and physical activity patterns, needed to be accounted for and addressed during our educational interventions. It required us to extend beyond cultural competency to include cultural humility.

Conclusions

In the current study, we found that cultural humility is an essential component in delivering diabetes education to older Hispanic speaking adults with type 2 diabetes. We found that the participants in our program understood the general diabetes educational material, but they wanted individualized instructions on what to eat and how much to eat. Most importantly, they did not

mind group instructions, but wanted to have individualized dietary instructions and meal planning based on their specific dietary practices and food preferences. Furthermore, the participants in our study did not like being critiqued about their eating habits and food preference. This was a finding that has not been demonstrated in other studies and may be due the multiple Hispanic cultures participating in our study as well as the age of our participants. It is important for health care professional to understand that diabetes is multifaceted and complex, particularly for older Hispanic/Latino adults.

Thus, older adults face additional barriers such as age, fixed income and other social determinant of health when compared to younger adults as well as their aged counterparts. Therefore, it is important the educational team have frequent communication, as well as discussions regarding the intervention. Most importantly, if the intervention is delivered by research assistants (graduate students), they should be encouraged to address that own cultural beliefs as well as be motivated to deliver the intervention as outlined. Thus, our research assistants by sharing what was being stated by participants were able to reflect on their individual culture and to demonstrate cultural humility.

Therefore, we demonstrated the importance of including cultural humility with the health belief model is a potential concept model for developing and implementing diabetes education programs to older Hispanic/Latino adults with type 2 diabetes (Table 1). Cultural humility operational: examples of introspection and redirection are shown in Table 1.

Acknowledgment of financial support

This study was supported by Wertheim Innovation Faculty Grant from the FIU Nicole Wertheim College of Nursing and Health Sciences.

Acknowledgments

Special thanks to Jennifer Garcia, RN who was an undergraduate nursing student (Honor’s College) coordinated the materials and staff, performed vitals, and collected data. Jennifer also conducted several classes on hypoglycemia and the timing of meals. Appreciation for all the students from the Physical Therapy Department who participating in data collection and carrying the exercise intervention. Our appreciation for the students from the Dietetics and Nutrition Department who helped with data collection, diet lesson structure, and participants’ feedback. Gratitude to the many students from the Honor’s College who volunteered and assisted with data collection and the interventions.

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