Development of the Live Well Curriculum for Recent Immigrants: A Community-Based Participatory Approach

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Abstract

Background: There are few weight gain prevention interventions aimed at new immigrants. Live Well, a community-based participatory research (CBPR) study, was designed to address this gap.

Objective: The goal of this paper is to describe the development of the Live Well nutrition and physical activity curriculum.

Methods: The curriculum draws on behavioral theory and popular education and was co-created, implemented, and will be evaluated by community partners and academic researchers.

Results: The time it took to develop the curriculum exceeded initial estimates. However, the extra time taken was spent engaging in needed dialogue to create a better product, fully co-created by academic and community partners. Additionally, working with an outside expert created the opportunity for all partners to train together, build capacity, and increase cohesion. Our approach developed relationships and trust, and resulted in a unique curriculum.

Conclusions: The commitment to partnership resulted in a curriculum to empower immigrant women to improve health decisions and behaviors. This will inform future research and programming targeting other at-risk and new immigrant communities.

Keywords

Immigrant, nutrition, physical activity, curriculum, obesity

In 2009, there were approximately 37 million immigrants in the United States, and it is projected that by 2050, nearly one in five Americans will be an immigrant.1 Regardless of country of origin, upon arrival, immigrants are healthier than U.S.-born adults but these advantages dissipate over time2 and overweight and obesity increase.3-8 This weight gain may be caused by a combination of financial, linguistic, and social stressors encountered during the acculturation process.9 Immigrant weight gain may also be influenced by the "obesogenic" environment of the United States, characterized by the availability of energy-dense, palatable, inexpensive foods, and limited opportunities for physical activity.3-6,10,11 This observed weight gain, coupled with projected increases in immigration, signifies a need for obesity prevention efforts that target early stages of the acculturative process. Current research in this area has focused mostly on diabetes prevention and has not targeted recent immigrants or used CBPR approaches.12

To address these gaps, we conceptualized, developed, and implemented Live Well, a lifestyle intervention developed and implemented through CBPR strategies. The central premise is that an appropriately timed intervention, co-created by community partners and academic researchers, can prevent excess weight gain in recent immigrant (<10 years in the

United States) mothers (20 to 55 years) with a child between the ages of 3 and 12, coming from Haiti, Brazil, and Spanish-speaking Latin American countries. A steering committee was established at the onset of the project (2007) and consists of a professionally and culturally diverse membership, including three project coordinators fluent in Spanish, Portuguese, and Haitian-Creole; a project manager; Tufts researchers and students representing different specializations (nutrition, sociology, public health, engineering); and leaders from five community organizations that work with immigrants in Somerville, Massachusetts. These community organizations are described in Table 1. The community–university relationships were built prior to Live Well through two CBPR projects in the Somerville area: Shape up Somerville[13] and the Somerville Community Immigrant Worker Health Project.[14,15]

A key element of the Live Well intervention is a nutrition and physical activity curriculum that draws on both classic behavioral theory and a learner-centered, popular education approach. The primary objective of this paper is to describe the development and ongoing evaluation of this novel curriculum.

METHODS

Formative Research Phase

In the fall of 2007, preliminary focus groups with mothers from each of the ethnic groups were conducted to better understand the barriers, beliefs, and attitudes toward nutrition and physical activity in the United States compared with their home country. The participants noted significant differences; they thought food in the United States is "less natural," there is less time for preparation, and there is more variety. They reported higher levels of stress, less control over their time, and less social support.[16] When asked what kind of nutrition and physical activity program would be of interest to them, they reported that a group-setting format, where they could interact with other women, would be ideal. The timeline used to develop the curriculum based on this formative research is summarized in Table 2

Identifying the Theoretical Frameworks

As the next step in the curriculum development process, all members of the steering committee participated in a 2-day retreat in June 2009. At this retreat, the theoretical basis and major philosophical perspectives for the curriculum were discussed in small groups, followed by full group discussion and consensus. Researchers brought up the importance of using classic behavioral theory, supported by a robust evidence base; community partners felt strongly about empowering participants, who confront the social determinants of health disparities on a daily basis. They shared the observation that immigrants' experiential knowledge of the issues that affect their living conditions and outcomes is often overlooked when, ideally, it should be consciously respected and incorporated. Additionally, the community partners felt they wanted to strengthen the collective power of immigrant women to influence the macrolevel policy and environmental changes that affect their health through civic engagement. The group agreed

Table 1. Community Partners and Their Organizations

Partner Organization	Work/Mission
Immigrant Services Providers Group/Health	Works on networking, advocacy, support, and the dissemination of information concerning immigrant health issues. Membership is drawn almost entirely from Somerville's immigrant communities
Welcome Project	To strengthen civic and community life in Somerville by diminishing racism and empowering the city's refugee and immigrant groups
Brazilian Women's Group	A volunteer-run grass-roots advocacy and community development organization, founded in 1995 by a group of Brazilian immigrant women from different backgrounds and occupations. Their members are united as community leaders to "make a difference" in their new communities
Haitian Coalition	Promotes Haitian culture and helps Haitian residents gain access to services and programs from legal aid to social services, from voter registration to small business training
Community Action Agency of Somerville	To reduce poverty among local families and individuals while working to counteract, and whenever possible eliminate, the societal conditions that cause and perpetuate poverty

to fuse behavioral theory with popular education philosophy and practice to create the intervention's theoretical foundation. Popular education, heavily influenced by Brazilian educator Paulo Freire, aims to empower people who feel socially and politically marginalized to take control of their own learning and to effect social change. Thus, Live Well's long-term aim is to empower immigrant women to make positive health-related decisions for themselves and their families and to engage them in community-level policy discussions that influence those decisions.

It was decided that a combination of seven group sessions (nutrition and physical activity curriculum) and five individualized phone calls using motivational interviewing, spaced throughout the 1-year intervention, would form the backbone of the intervention. Academic researchers and community partners also reaffirmed the replicability and sustainability of the intervention as a priority.

Building Capacity of Educational Methodologies

Although the steering committee agreed that popular education was the most appropriate theoretical model, members felt their understanding of this approach needed to be strengthened. Therefore, a highly experienced specialist trained the steering committee and assisted the group with the curriculum development. The main constructs covered during this training were adult learning theory, multiple intelligences (different approaches to learning), and the notion of folk wisdom. Basic principles of popular education were introduced, which included the following: (1) Content must reflect the participants' experience, (2) classes should be based on dialogue and interaction, as opposed to knowledge "banking" (storing information taught by an instructor), (3) problems are to be posed and discussed instead of being answered, (4) there must be a cycle of action and reflection (praxis), and (5) all activities need to be geared toward the explicit goal of behavior change.

Developing the Curriculum

The steering committee formed a subcommittee, composed of community partners and academic researchers, to design the nutrition and physical activity curriculum. A literature review was conducted to identify evidence-based curricula targeting physical activity and nutrition among recent immigrants to the United States. We found none, but identified the Cooking Matters (formerly Operation Frontline) and the *Pasos Adelantes* (Centers for Disease Control and Prevention curriculum for Hispanics) curricula for use as starting points, as they had been used effectively in ethnic minority populations.[17,18] These curricula, however, did not directly use popular education approaches.

Over a 2-month period (fall of 2009), the subcommittee, along with the popular education consultant, met regularly to discuss topics, structure, and timing of the sessions, which were guided by information about lifestyle health behaviors and barriers that emerged from the formative research with immigrant mothers. At these meetings, researchers brought ideas of nutrition topics and physical activities that could be included in the sessions. Although session topics are not unlike those covered in typical nutrition education programs, the curriculum development was guided by inquiry, specifically about our participants—for example, What is the level of understanding about this topic in our communities? Are there beliefs and myths around this topic? What would be the best way to introduce this topic? What are the most

Table 2. Timeline of Curriculum Development

June 2009	Steering committee retreat—decide on popular education framework for the curriculum
July 2009	Training of all steering committee members on popular education
August–October 2009	Curriculum content development: topics informed by focus groups and subcommittee
November–December 2009	Curriculum submitted to full committee for review/comments
January 2010	Translation of curriculum by certified translators in Haitian-Creole, Spanish and Portuguese.
February 2010	Facilitation training for coordinators and other steering committee members

effective questions to engage thinking about this? When thinking about this topic, what are potential activities to guide action or behavior change?

Three researchers then came together to expand upon the discussed material and to further develop each session. Another researcher reviewed these sessions for consistency of adherence to the underlying behavior change theory. In November 2009, a full copy of the curriculum was sent out to the larger subcommittee and to the popular education consultant for review. Remaining questions posed by any of the partners were then resolved. During this phase, feedback led to important restructuring of the curriculum such that direct information delivery was reduced, and the focus on discussion and problem solving was enhanced. Certified translators translated the curriculum sessions into Spanish, Portuguese, and Haitian Creole. The project coordinators pilot-tested with video recording the first session of the curriculum with 5 Latina, 5 Brazilian, and 10 Haitian women in each of their respective languages. Based on participant and coordinator feedback, minor changes were made to each of the language-specific versions to ensure cultural appropriateness and enhance comprehension.

Training

After the piloting of the curriculum, in February 2010, the steering committee attended a 2-day training on popular education-based facilitation led by the external consultant. During this training, members learned to operationalize the popular education philosophy, practiced, and received feedback on their facilitation. Over the 2 days, topics discussed during the first popular education session were reiterated and additional topics were introduced: Working with new groups, how to encourage group bonding and cohesion, monologue versus dialogue (talking with versus talking at people), and the use of open-ended questions (how to elicit a dynamic conversation).

RESULTS

The Curriculum

The resulting Live Well curriculum incorporated information about key nutrition and physical activity topics while using a structure that facilitated the sharing of participant experiences and guided group discussion around behavior changes. Because popular education informed the intervention's pedagogy, participants were regularly given the opportunity to share their own experiences, reflect on information, learn from each other, and generate their own solutions to problems that concerned them by applying the information presented, as they perceived it. We also incorporated discussion, drawing, drama, physical activity, and other hands-on activities to allow for the use of multiple intelligences. In addition to using popular education practices, the curriculum was developed using social cognitive theory to anchor the behavioral strategies used.[19] The main constructs were observational learning, outcome expectations (beliefs about the outcome of performing a given behavior), and self-efficacy. Self-efficacy has been shown to be particularly important in successful health behavior change, and was applied by encouraging participants to make small, doable changes, setting achievable goals, giving them opportunities for enactive mastery experience ("mastery experience" wherein success raises self-efficacy, failure lowers it) through hands-on class activities (e.g., cooking, doing physical activity), and through providing positive verbal feedback during sessions. Every effort was also made to ensure sessions offered safe, nonjudgmental spaces for frank discussion, thereby reducing anxiety and promoting positive affective states for the participants. Session titles, objectives, and the associated targeted behavior change, along with the relevant theoretical constructs, are presented in Table 3.

Evaluation

Three types of evaluation are currently being collected: Process evaluation of the community-university partnership, process evaluation of the curriculum for the intervention, and outcome evaluation for the randomized trial. To evaluate the partnership, qualitative and quantitative data are being collected and analyzed to capture the dynamics, function, and contributions of the steering committee throughout the process. Additionally, a survey administered to the steering committee (n = 17) in the fall of 2010 revealed that none of the committee members disagreed with the statement, "I can speak open and honestly at committee meetings," 88% of committee members agreed or strongly agreed that "committee members respect one another's points of view even if they might disagree," and the remaining 12% felt neutral about this statement. Finally, the development of the popular education curriculum was the most frequently listed

Table 3. Live Well Nutrition and Physical Activity Curriculum: Goals, Objectives, Popular Education Examples and Constructs from Social Cognitive Theory

Session Goal	Session Objectives	Popular Education Element	Social Cognitive Theory
Session 1: Introduction to Live Well			
Introduce the project and create a comfortable environment for the participants to share about the connection between immigration and health and to learn from others' experiences.	Understand the connection between immigration and changes in health.	Group Discussion: What are some of the differences you have noticed in your health since you immigrated to the United States?	Observational learning
	Gain awareness of possible changes in physical activity and diet since immigrating.	Group Activity: Creating A Balanced Plate using My Pyramid: A drawing activity that will allow participants to explore how their diet has changed since immigrating to the United States, and introduce them to the components of a balanced diet. Then discuss: 1. Are there any foods drawn by someone else that you are unfamiliar with or have questions about? 2. What are the diet similarities you notice between the plates from the home country and the plates from the U.S.? 3. What are the differences? 4. Anything else you want to add?	Outcome expectations Self-efficacy: Information, small steps, goal setting
	Understand that diet and physical activity are components of health.	Physical Activity: Participants will prepare skits in different groups to: (1) Demonstrate ways in which you and/or your children were active in your home country; (2) Demonstrate ways in which you and/or your children are active in the United States; (3) Demonstrate ways in which you and/or your children would like to be active, but are not currently. Then discuss: 1. What do you notice? 2. What strikes you as being different here in the United States versus your home country?	
	Learn what constitutes a balanced diet through My Plate.		
	Think about different ways to engage in physical activity.		
Session 2: Chronic Disease Prevention			
To raise awareness about chronic disease prevention and how a healthier life can prevent—or delay—onset of some illnesses.	Participants will work in groups and engage in conversation about a case study related to chronic disease prevention.	Group Discussion: Discuss case study of a woman who emigrates from El Salvador and develops high blood pressure. Women discuss following: (1) How did this story make you feel? (2) Do you know anyone with a similar story? Do you connect with the story? (3) What strikes you the most about the story? (4) What kind of sickness does she have? (5) What does it mean to live well and be healthy? (6) What advice would you give this person? (7) Would you make any changes for yourself after hearing this story?	Observational learning
	Participants will be able to explain the concept of energy balance using visual examples.	Group Activity: Energy Balance in Real Life Participants form groups of 3-4. Each of the groups has different food items and note cards with one food item on the front and an activity on the back. Each group member selects one food item and selects the appropriate note card. Once they have the card they will perform the activity listed on the back for the time specified. After each woman has gone, have them come back to the group and ask the following questions: (1) What did you notice about this activity? (2) What do you think it means?	Outcome expectations Self-efficacy: Goal setting, enactive mastery experience

table continues

Table 3. *continued*

Session Goal	Session Objectives	Popular Education Element	Social Cognitive Theory
	Participants will engage in a risk factor activity and engage in conversation about what this means.	Physical Activity: They play a mimic game (Charades) to think about other ways to be physically active each day. Everyone receives a card with a number on it. They need to find the other person who has the same number. Once they find their partner(s), they open up the cards and see an activity. They have to mime the activity, without saying any words. When someone guesses correctly, it is their group's turn to present. Then discuss: (1) Did you notice any changes in your body while we were moving around? (2) How did that make you feel? (3) Now that we have stopped, how do you feel? When you are active, what kinds of benefits/improvements do you notice for yourself? (Facilitator will write benefits down on the board.) (4) Do you think you can incorporate any of these activities into your daily life? Do you think there are activities that you could incorporate with your children?	
	Participants will understand that being active offers many physical and emotional health benefits.		
	Participants will understand there are many ways to fit activity into their daily schedule.		
	Participants will understand that physical activity can happen in short intervals over the course of the day as opposed to doing it all at once.		
Session 3: Plate Size and Portion Control			
Describe how portion control and plate size influence dietary intake.	Participants will be able to describe a "balanced plate."	Group Activity: Plate Size—Balanced plate activity. Participants draw a circle on the board and, next to it, write the following: Grains, protein, fruits/vegetables, and healthy fats. They are asked, what proportion do you think that each should take up on the plate? Once participants agree, a balanced plate sheet is handed out. Any reactions? Is this what their plates look like?	Outcome expectations
	Raise awareness about portion sizes.	Group Activity: Each participant scoops a portion of rice and beans based on what they would normally eat. Then participants sit down and look at their portions—based on what they have seen so far they discuss if they would they change anything? Discuss the following: (1) How would your family respond if you adjust portion sizes? (2) What would be some of the barriers to changing portion sizes? (3) Is there anything that would make this easier? (4) Is there a difference with portion sizes in your home country and here in the United States?	Behavioral beliefs and capability
	Participants will be able to identify ways in which to increase their consumption of fruits and vegetables.	Physical Activity: Participants find a partner. They then make a circle around the room, standing side by side with their partner. Then they try some activities (walking, jogging.) As they try new activities they share a story with their partner or just how your day is going. As they change activities, they are asked to think about how easy or challenging it is to carry on a conversation.	Reciprocal determinism (The dynamic interaction between person, behavior, and environment)
	Participants will be able to identify barriers to consuming fruits and vegetables.	Group Discussion: (1) How did you feel while you were walking slowly? Was it easy to talk with your partner? (2) What changed when we started moving more quickly? Were you still able to talk? (3) What were the changes you noticed when we tried jogging and jumping?	Self-efficacy – goal setting, small steps, enactive mastery experience, instruction/ information

table continues

Table 3. *continued*

Session Goal	Session Objectives	Popular Education Element	Social Cognitive Theory
Session 4: Fats, Sugar, Sodium and Healthy Food Preparation			
Understand the health benefits and concerns associated with dietary fats, sugars and salt. Familiarize participants with basic principles for choosing and preparing a variety of healthful foods at home.	Connect fat, sugar and salt to real foods.	Group Discussion: Facilitator asks group and writes on the board: "When I say fat, what types of foods do you think of?"	Observational learning
	Learn how saturated fat, *trans* fat, added sugars, and sodium are related to chronic disease.	Group Activity: Participants form pairs where they will interview one another and report back to the group on what the interviewee said. They each have 2 minutes to share. The facilitator will tell them when to switch. Questions: (1) How did you cook with fat in your home country? (2) Do you cook the same way here?	Reciprocal determinism
	Learn about the benefits of unsaturated fats in the diet.	Group Activity and Discussion: Participants are paired up and they have to prepare a skit about how they prepare food at home: Then participants discuss the skit in a group: (1) What did they observe in the skits? (2) Do you prepare food at home? (3) If so, how do you do this? How long does it take? What types of ingredients do you use? (4) Who eats? How do you feel about this process?	Behavioral capability and expectations (correcting misinformation)
	Limit the amounts of saturated and *trans* fats, added sugars and sodium consumed while eating enough unsaturated fats and natural sugars found in fruit.		Self-efficacy – enactive mastery, small steps
	In small groups, discuss food preparation experiences and identify how participants can make healthier choices while cooking at home.		
	Practice choosing healthy ingredients and preparing a healthy recipe.		
Session 5: Eating Out and Food Advertising			
To empower participants to make healthy choices while eating out and buying food.	Think about the benefits and consequences of eating out.	Group Discussion: Facilitator asks the group: (1) "What does eating out mean to you?" (2) "Where are some of the places you eat out at?" (Answers are written on board)	Observational learning
	Learn how to choose healthier options off a menu and how to choose appropriate portion sizes.	Group Activity: Fast Food Game. Everyone stands in a line at one end of the room. "I want you all to think about this last week and how many times you ate out. If you had breakfast out this week, take one step forward. Now, if you had lunch out this week, take one leap forward. If you had dinner out this week, take two leaps forward. If you ate out with your whole family, take two more leaps forward." "Now thinking about the past month: If you ate out at "Name of Fast Food Place Mentioned" jump up and down. Repeat until all places written on the board are mentioned Remember, we need to use the energy that we take in through food; so the more we eat out, the more active we should be."	Reciprocal determinism

table continues

Table 3. *continued*

Session Goal	Session Objectives	Popular Education Element	Social Cognitive Theory
	Understand how food advertising can influence consumer choices and learn to be a critical consumer.	Group Activity: Group is divided into pairs and each given some food advertisements. They discuss how it makes them feel and if they are interested in the product. The following questions are asked five Media Questions: (1) Who created this message? (2) What creative techniques are used to attract my attention? (3) How might different people understand this message differently? (4) What values, lifestyles, and points of view are represented in, or left out of, this message? Why is this message being sent?	Behavioral capability
	Participants will be able to recognize ways in which they are targeted – both as immigrants and as mothers.		Outcome expectations
			Self-efficacy – enactive mastery experience
Session 6: Navigating the Food Store			
Give participants opportunity to compare foods and prices at the grocery store while having a facilitator guide them.	Compare different types of foods (more nutritious vs. less nutritious)	Supermarket Tour (adapted from the Operation Frontline curriculum)	Observational learning
	Participate in food shopping activity		Reciprocal determinism
	Be able to choose nutritious and economic choices		Self-efficacy – enactive mastery experience
Session 7: Final Session Celebration and Wrap-up			

item in response to a question asking about the area where the committee partners felt they had the greatest impact.

To assess that the curriculum was appropriately developed and implemented, a process evaluation of the curriculum for the intervention is underway. After each session, participants complete a brief survey and project coordinators record successes, challenges, questions, anecdotes, and experiences from the session. This information is currently being organized and prepared for further analysis. Three focus groups were also conducted in the summer of 2011 with a small group of women from each ethnic group. Women were asked to reflect on their experience with the Live Well curriculum and how they have integrated it into their lives. Although not yet analyzed, a preliminary read through of the transcripts revealed that women had strong positive experiences and felt empowered by the curriculum. These focus groups will be followed up with further qualitative research addressing the same question.

Finally, for outcome evaluation, participating dyads are having anthropometrics screenings at three times points throughout the intervention (baseline, 6 months, and 12 months). Surveys collecting information on sociodemographics, diet, physical activity, depression, stress, and feeding styles are being collected at baseline and postintervention. The primary outcome of the Live Well intervention is comparing weight change in the intervention group compared with the control group at the end of 1 year. Secondary outcomes are assessments of fruit and vegetable consumption and physical activity. The process evaluation will provide additional information with which to interpret the results of the outcome evaluation.

LESSONS LEARNED

Through a community–university partnership, we created a unique curriculum for the Live Well intervention. We believe the process by which we developed this curriculum is noteworthy for fully involving community partners and academic researchers; however, it was not without challenges.

Extending the Timeline

First, the time it took to develop the curriculum exceeded our initial estimates. In maintaining CBPR integrity, we sought to ensure that at least one community partner and one researcher were always present at the subcommittee meetings. However,

given other commitments and distant office locations, it was difficult to find mutually convenient meeting times. Therefore, we scheduled 30- to 60-minute conference calls, which were very successful. We also alternated meetings between community partner and university sites, and morning/evening times. The commitment to capacity building, indicated by several popular education training sessions, also extended our timeline. We found, however, that hiring the popular education consultant provided several benefits: It ensured fidelity to the principles of popular education and it gave members the opportunity to engage in the learning process as a group.

Managing Differing Points of View

Another challenge was that researchers and community partners did not always share the same point of view, particularly with regard to applying evidence-based behavior change material. For example, community partners favored more practical solutions and applications, whereas the academics expressed the importance of using research-supported curricula and classic behavior theory. Meeting time was specifically set aside for collegial debate. Community partners explained their experiences of working with this population, what they found critical, and their beliefs around using an evidence-based curriculum. Academics explained the reasoning behind why an evidence-based curriculum is considered important in research, the benefits of using one, and what elements could be flexible. This allowed for a discussion of how behavior theory and an evidence-based curriculum could fuse with popular education and community experience so that our final product contained all elements. The genuine, active listening and mutual respect that occurred during this process built trust among members, as evidenced by the process evaluation survey, and enhanced the quality of our final product.

Maintaining Fidelity to Popular Education

Finally, despite academics' support of using popular education, the initial drafts were more representative of classic intervention sessions, with an emphasis on information delivery vs. open-ended, discussion-based questions. Consequently, the outside consultant helped to shape the sessions such that there was more room for dialogue and problem-posing questions. Popular education technique also requires very strong facilitation skills on the part of program staff delivering the material; this was accomplished through several training sessions. As a result of their enhanced facilitation skills, staff were able to establish credibility and rapport with the intervention participants and ensure content integrity.

CONCLUSION

We believe the strengths of our collaborative approach far outweigh the challenges. Having the community partners' input and perspectives produced a culturally sensitive curriculum that permits immigrant women to share their own experiences. This process may help to promote sustainability, because the community organizations feel ownership over the curriculum and may incorporate it, or parts of it, into their ongoing programming. Also, the additional time dedicated to development allowed for several iterations, improvements, and, ultimately, a better product. The curriculum is based on participants' experiences and problem solving and therefore inherently captures differences between ethnic groups, beyond language. It also gives the participants the opportunity to shape their own learning and behavior change to fit with their lives and circumstances.

The use of a CBPR approach to develop a nutrition and physical activity curriculum for new immigrant women was beneficial in capacity building for both academic researchers and community partners, as well as for promoting relationship building and trust. This process produced a curriculum that empowers women by giving them control over their learning, and represents the collective health behavior change expertise of community agencies, academic researchers, and immigrant women. Although this process took a significant amount of commitment, time, and patience, we believe that, with appropriate training, our approach can be adapted for use in other populations and can inform future work with immigrant groups.

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