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TESIS DOCTORAL

Study and comprehension of barriers to mental health in Latino population. Social and cultural factors related to access and retention to mental health services.

Estudi i comprensió de les barreres i factors socials i culturals associats a l'accés i retenció als serveis de Salut Mental de la població immigrant llatinoamericana.

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Facultat de Medicina

Barcelona, 2017

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Universitat Autònoma
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Programa de Doctorat de Psiquiatria

2017

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DR DIEGO J. PALAO VIDAL, professor of the Department of Psychiatry and Forensic Medicine at the Universitat Autònoma de Barcelona and executive director of Mental Health at the Corporació Sanitària Parc Taulí,

CERTIFIES THAT:

the research work presented by Mrs. Irene Falgas Bague, entitled "Study and comprehension of Barriers to mental health in Latino population. Social and cultural factors related to access and retention to mental health services" carried out under my direction, meet the necessary scientific, methodological and originality requirements to be defended as Doctoral Thesis of the Department of Psychiatry and Forensic Medicine to the tribunal that legally proceeds.

And for it to take effect, it is signed the present in Sabadell,

Dr. Diego J Palao Vidal

I. ACKNOWLEDGEMENTS

To my parents, for being a pillar of unconditional love.

To my director, Diego Palao, who trusted me for so many years and who made things simple when they were not. For introducing me to the world of research and allowing me to launch my work in the sphere of cultural and social psychiatry.

To Paco Collazos, who has been an exceptional boss and colleague and has supported me at all times.

To Margarita Alegria, who trusted me and gave me a thousand learning opportunities. For patiently guiding me throughout this project and above all, putting people first.

To all who have worked on this project: Sheri, Ana, Lucia, Lizbeth, Larimar, Rodrigo, Yareliz, Adil, Zorangeli, Lisa and Karissa among others -- without them it would not have been possible.

To Pablo, without him I would not be writing this. For giving me all his love and his support, always and every day. Junts ho aconseguim.

To Pau and Simbad for being my enthusiasm, my tenderness, my everything.

To all of them.

Moltes gràcies.

Boston, October 2017

II. PROLOGUE

The work of this thesis, presented as a compendium of indexed publications, consists of two published articles and a third one that is submitted for publication and under journal review at the moment of the deposit:

1. Barriers to and Correlates of Retention in Behavioral Health Treatment among Latinos in Two Different Host Countries: U.S. and Spain

I. Falgas, Z. Ramos, L. Herrera, A. Qureshi, L. Chavez, C. Bonal, S. McPeck, Y. Wang, B. Cook, M. Alegría

J Public Health Management & Practice. 2017 Jan-Feb; 23(1): e20–e27.

Impact Factor: 1.258 Quartile 2

2. Clinical Care Across Cultures: What Helps, What Hinders, What to Do.

Alegría, M., Alvarez, K., & Falgas-Bague, I.

JAMA psychiatry. 2017 Sept; 74(9).

Impact factor: 15.8 Quartile 1

3. Adherence as predictors of adherence to treatment in a culturally centered behavioral therapy for Latino migrants.

Falgàs Bague I., Wang Y., Palao D., Alegría M.

Psychiatric Services (2017) *accepted for review*

Impact factor: 2.888 Quartile 1 (presented as a supplement)

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1. ABSTRACT

Background: Growing Latino population in U.S. and Spain poses important challenges for public health systems in both countries, from limited accessibility of behavioral health services to low quality and lack of continuity of care. There is a paucity of research that identifies the specific barriers and their role on predicting adherence to mental health and substance abuse treatment within Latino populations and investigates whether these variables change depending on the host country. In this research project, we aim to identify barriers to access and retention and the clinical, social and cultural factors related to them. Moreover, we assess how these factors and barriers in care influence treatment retention of a culturally adapted integrative therapy for Latinos with behavioral disorders.

Methods: This research work included a clinical research body, with an observational and an interventional component and a critical review on the topic. Participants were recruited prospectively in the community in three sites; Boston, Madrid and Barcelona. After being screened for mental health and substance abuse symptoms, data on perceived barriers, clinical symptoms, health literacy, discrimination and socio-demographic variables was collected. Eligible participants were randomized for receiving the Integrative Intervention for Dual Problems and Early Action program (IIDEA), a cultural sensitive psychotherapy intervention based on Cognitive Behavioral Therapy (CBT), psychoeducation and mindfulness. Adherence to this intervention was assessed. The observational study that described barriers to retention to treatment among Latinos was first published. A second study assessing the relationship between previously reported barriers to care and adherence to the IIDEA intervention was written and submitted for publication. Finally, a critical review of the literature assessing access and retention to care among Latino immigrants complemented the research project.

Results: Barriers that reflect self-reliance “Wanting to handle the problem on one’s own”, mistrust on behavioral health care systems, “Thinking that treatment would not work”, and “Being unsure of where to go or who to see” were the most frequently reported barriers for Latino immigrants. Differences in reported barriers were found across sites. Two specific barriers were also found to be associated with use of behavioral services. Regarding retention to the IIDEA intervention, Latinos who reported at least one barrier at baseline presented a higher retention to the program compared to those participants who did not report any barrier. Participants that reported more than three barriers showed greater completion of the program compared to those who reported less than three barriers, a

difference that was also significant. Mistrust in the behavioral services reported barrier was significantly associated with greater retention in the program. Education and perceived discrimination were found to be predictors for completing the IIDEA program.

Conclusions: This thesis points out the importance of assessing barriers in health care. Efforts to improve behavioral health services must be tailored to immigrants 'context, with attention to overcoming attitudes of self-reliance, cultural mistrust and outreach to improve access to and retention in care among Latino immigrants.

2. INTRODUCTION

Social, cultural and ethnic disparities in mental health are gaining attention worldwide [1]. Differences in access to healthcare leading to poorer outcomes and prognosis have been evidenced among patients for a diverse range of diseases including diabetes, high cardiovascular risk or cancer in low-income countries compared to middle and high-income ones [2, 3]. However, differences are also found within the same country for multiple reasons such as social and ethnic factors [4, 5]. In the field of mental health, differences in outcomes are greater at all levels, from comparing countries to neighborhoods. Thus, the study of these inequalities has become an obligation for the scientific community [6-10]. However, the study of these differences in access, treatment retention and consequent results remains minimal in Spain, often assuming that there are no differences under the umbrella of the universal health system [11] and the healthy immigrant theory [12, 13]. However, there is evidence that health inequity increased during and after the great recession of 2008 [14] and that mental health perception among immigrant population is lower than their native counterparts, [12, 15].

Barriers to mental health are defined as *all the obstacles that a person in need of mental health services face in accessing, receiving and finalizing a treatment with success* [16]. Common barriers to mental health care access include limited availability and affordability of mental health care services, insufficient mental health care policies, lack of education about mental illness, and stigma [16-19].

Among immigrant populations, these barriers to access increase significantly when the host country does not share the same cultural and historical background [20] and by factors related to the migration process itself, such as acculturation and ethnic identity which can increase the existent barriers. An in-depth study of these factors and how do they interact with the individual and the host society is needed to achieve high-quality healthcare for all residents of a country.

In the United States, Latinos constitute the largest and fastest growing immigrant population [21]. In Spain, Latinos represent 25% of the total immigrant population, and the most important non-European immigrant group [22, 23]. However, there is a paucity of research studies both in the U.S. and in Spain looking at the barriers related to retention in care among Latinos.

In the United States, studies have persistently shown that Latinos have early dropout and high rates of missed follow-up appointments once they enter mental health treatment [24,

25]. Among the evidenced barriers to care are: lack of health insurance, low income, lack of transportation, lack of child care, inability to take time off from work, poor educational attainment, limited English proficiency, and perceived discrimination. Identifying these barriers in both countries can help to reduce disparities in mental health treatment for Latinos. In Spain, the literature shows that immigrants have lower access to mental health care [26], and receive less psychotropic medication than the native born population [27, 28]. Among the ethnic minority groups in Spain, Latinos receive more treatment than other immigrant groups [27]. This could be accounted by the fact that language is not a barrier for Latinos when it comes to accessing care. However, Latinos still face difficulties at staying in treatment. Non-legal status, short time of residency in the country, and precarious working conditions are among some of the identified barriers [29]). Lack of cultural competence of providers has also been identified as a possible barrier to mental health treatment [30]. Regarding retention in treatment, studies showed lower attendance to scheduled outpatient visits [31], and lower adherence to antipsychotic medications treatment among immigrants compared to the native born population [32]. However, as health disparities, knowledge gaps regarding the role of barriers to care in treatment access and retention are still enormous.

This thesis was designed to improve knowledge on the role of barriers to access and retention for behavioral health disorders among Latin American immigrant population in Spain and United States.

3. LITERATURE REVIEW

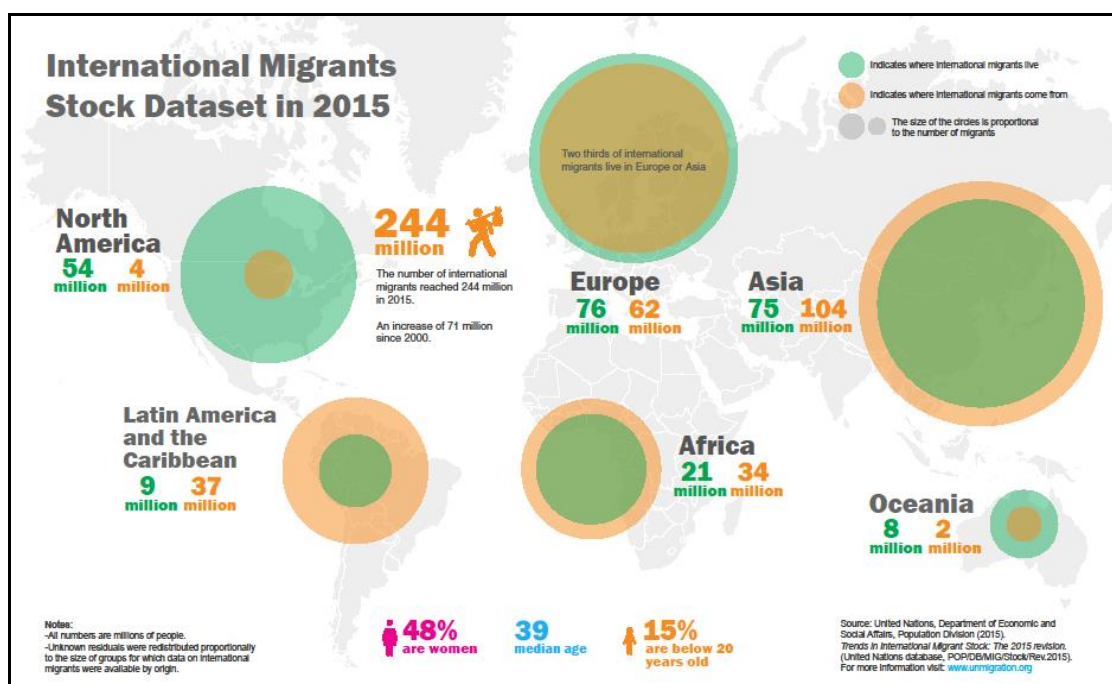
3.1 A world of migrants

Human migration is an essential component of human evolution and development of human civilization [33]. Although migration has been a constant in all periods of time, we are currently living in an increasingly interconnected world where migration is found in almost every corner of the globe. Improved transportation and media evolution has made human movements easier, cheaper and faster. At the same time, geo-political conflicts, poverty, inequality and lack of decent jobs are among the reasons that push people to leave their homes for a better future.

Since the 1994 International Conference on Population and Development (ICPD), the issue of international migration and its relation to development has risen steadily on the agenda of the international community. According to the recent United Nations (UN) report, "Trends in international migrant stock: the 2015 revision", the number of international migrants worldwide has continued to grow rapidly over the past fifteen years reaching 244 million in 2015 representing an increase of 41% since 2000 [34]. Moreover, early two thirds of all international migrants live in Europe (76 million) or Asia (75 million). Northern America hosts the third largest number of international migrants (54 million) being US the country with the largest number (48 million).

The median age of international migrants worldwide was 39 years in 2015. Most migrants worldwide come from middle-income countries (157 million in 2015), and migrated to high-income countries. Between 2000 and 2015, positive net migration contributed to 42 per cent of the population growth in Northern America and 32 per cent in Oceania. In Europe, the size of the population would have fallen between 2000 and 2015 in the absence of positive net migration [34].

Figure 1. Number of migrants per the destination country (UN, 2015)



3.2 Immigration from Latin America: the cases of Spain and the US. Access to health care

In the last 15 years Spain, has dramatically changed from being a country of emigration to one of immigration. The percentage of immigrants in Spain has increased from 2.28% of the total population in 2000 to 12.2% in 2011. Although this increase slowed with the crisis after 2008, it has stabilized in 10% in 2016 [23, 35]. Immigration has made the country change and evolve rapidly, enlarging in a crucial way, the countries' workforce with 1.6 million of contributors to the social security system [36]; it also has made the Spanish population younger; and it has contributed to a major diversification of the cultural and social tissue of the country.

Immigrant settlement in Spain follows a geographic distribution depending mostly on employment opportunities. In the main cities of Madrid and Barcelona, where immigrants are employed as domestic and construction workers, immigrants make up approximately 20% of the total population. In East coast cities, where immigrants work in agriculture, immigrants account for up to 75% of the population in some places. While Latin America and the Maghreb are the principal sources of immigration to Spain, country of origin varies considerably by province. Most of the Latino population is concentrated in Madrid and Barcelona and other big urban areas, whereas North Africans and Sub-Saharan Africans live mostly on the East Coast.

Latino immigrants represent the 25% of the total immigrant population and are the largest non-European immigrant community [36]. Starting to migrate to Spain in the beginning

of this century, Spain has become the second destination Latin American emigration, after United States [37]. They come mostly from Ecuador, Colombia, and Bolivia [38], although there are small communities from other countries concentrated in some neighborhoods and small cities such as a big community of people coming from Honduras in Girona. It is known that first were mostly Latin women who migrated alone to the main cities to enhance domestic workforce in jobs that often involved precariousness and lack of legal and administrative security [39]. After some time, men and children started to come using family reunification law procedures.

The social and economic consequences of the crisis especially affected the immigrant population [40-42]. Nonetheless, immigration has clearly become a fundamental issue to study in Spain [35] and one that will likely increase in importance over the long term. Given the ideal of universal health coverage, the increase of the immigrant population represents a challenge for the Spanish health system and the professionals associated with it.

Table 1: Origin nationalities that obtained Spanish citizenship in 2015 [36]

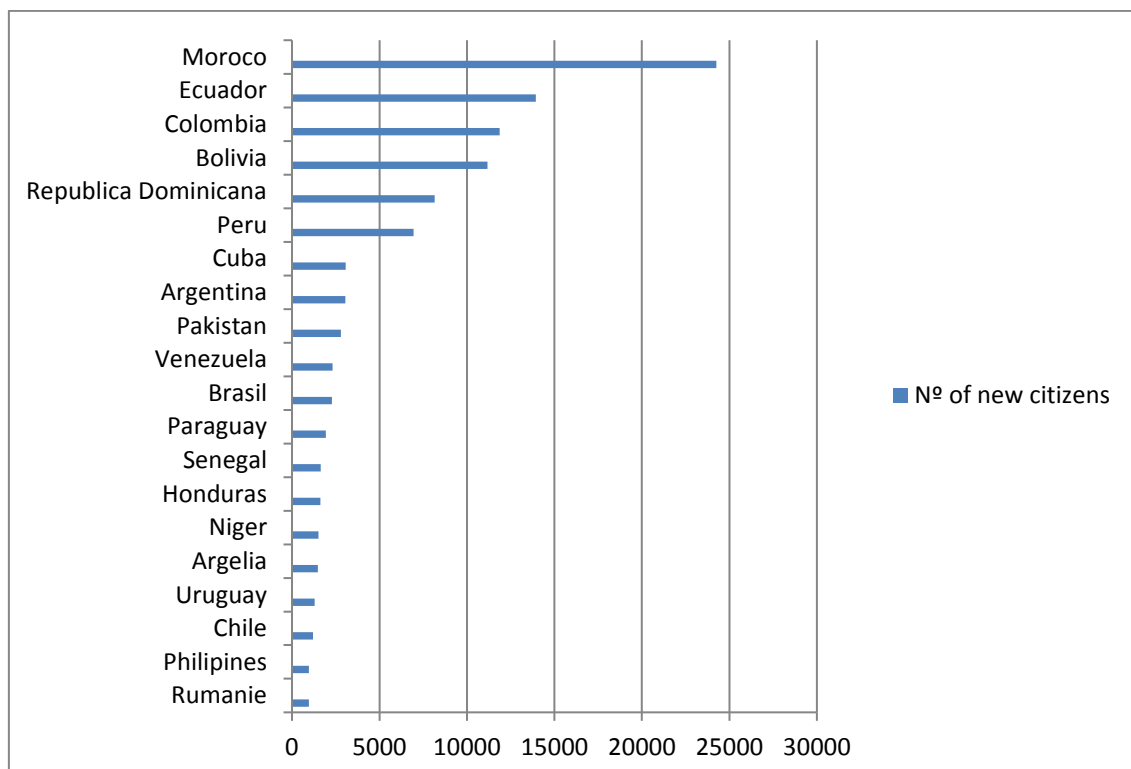


Figure 2: Immigration to Spain according to country of origin [36]



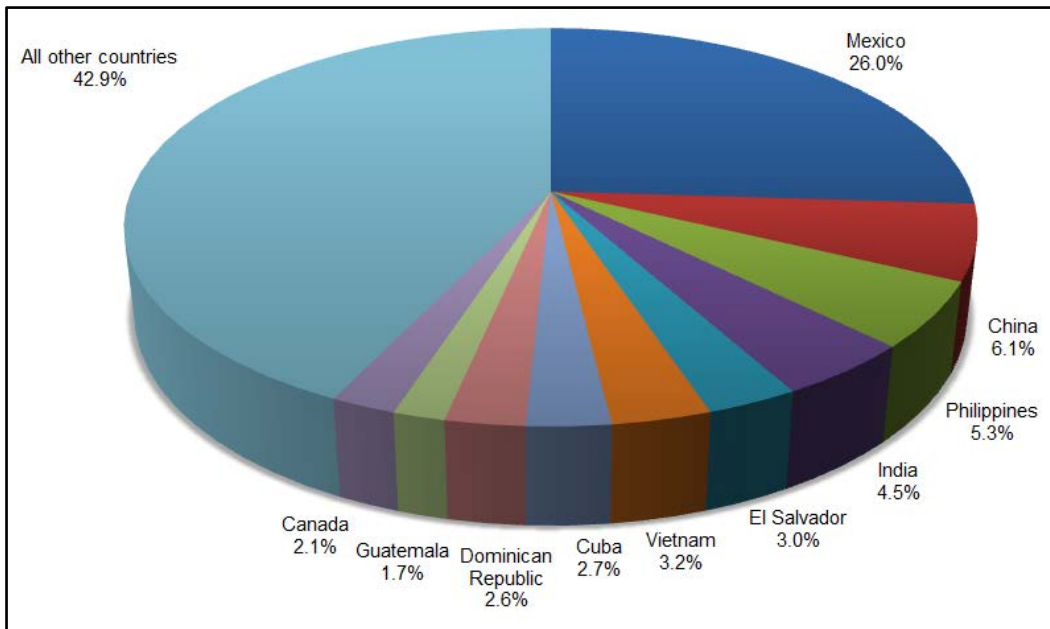
Although Spain has universal coverage for primary care, specialty care, and prescription drugs, a law denying health coverage to undocumented immigrants was instituted in 2012 [43]. However, the law has not been fully applied and effects of its implementation are still unknown. The main entrance to the health care system is through primary care centers, where each person has an assigned primary care provider. In Barcelona, primary care providers are assigned according to the client's address. Each primary care center has an assigned general hospital and behavioral health center. In Madrid, any person can choose their primary care provider and specialty hospital of reference regardless of their home address. In both Barcelona and Madrid, primary care providers are responsible for referring patients to mental health care centers. Specialty providers in mental health centers classify referrals and provide appointments according to severity, whereas substance abuse treatment is open to all registered persons in the municipality.

Immigration and United States are two words linked by history and country development. It is commonly known that US is a country made from immigrants after the colonization that started in the 15th century. However, immigration still affects American society in many ways. According to U.S. immigration survey, there is an important gap between information needs and existing data in order to build better public policies and research [44].

Immigrants represent a 13.5% of the total US population being 43.3 million people in 2015. However, including U.S.-born children the number rises to approximately 84.3

million people, or 27% of the overall U.S. population [45]. The origin of immigrants in US is very diverse. In 2015, Mexicans accounted for approximately 27% of immigrants in the country, making them by far the largest foreign-born group in the country. India was the next largest country of origin, with close to 6% of all immigrants, followed by China and the Philippines, at close to 5 percent each. El Salvador, Vietnam, and Cuba represented 3% of the total population each and finally, Dominican Republic, Korea, and Guatemala a 2% each. Together, immigrants from these ten countries represented 58% of the U.S. immigrant population (Figure 3). The predominance of Latin American and Asian immigration in the late 20th and early 21st centuries starkly contrasts with the trend in 1960 when immigrants largely originated from Europe.

Figure 3: Immigrants in U.S. according country of origin [46]



According to 2009 data, 14.4% of Massachusetts residents (948,061) were immigrants, most coming from Latin America and Asia.

Of these immigrants, 621,912 are established immigrants who have lived in the United States for 10 or more years, and 326,149 are recent immigrants who have lived in the United States for fewer than 10 years. Only 14.8% of these recent immigrants have acquired citizenship. Immigrants are concentrated to a greater extent than natives in Boston and close suburbs and in other urban areas in the eastern part of the state.

Boston alone accounts for 17.1% of the immigrant population. Immigrants in Boston account for 25.1% of all persons. The largest proportion of immigrants originated from Latin America (34. %) followed by Asia (27. %) and Europe (26. %). Brazil, China, Dominican Republic, Portugal, India, Haiti, Vietnam, Canada, El Salvador, Guatemala,

Cape Verde and Russia are the more common countries of origin [47]. Sixty seven percent of Boston residents speak only English. Regarding English proficiency, 25% of self-identified Latinos speak “not well” or “not at all” English [48].

Since the Patient Protection and Affordable Care Act of 2010, health insurance coverage has increased for legal residents through partially and fully subsidized insurance plans. However, undocumented immigrants and persons with less than 5 years of legal residence cannot receive federal insurance subsidies or enroll in Medicaid (a social health care program for low-income individuals). The main entrance for Latino immigrants to the health care system is through community-based clinics where patients can choose a primary care doctor that accepts public insurance and either treats or refers them to mental health and substance abuse care. Although Massachusetts has the highest insurance coverage in the nation [49], barriers within the process of care seem to remain.

3.3 Migration and mental health

Every important change in the conditions of life could be a stressful event. In migration, this change is usually performed in three different phases: Release-separation from the environment of origin, movement-transition to the environment of settlement and adaptation to the new environment. Although every migration attempt has different features, there are some common stressful parameters that appear in many cases of migration in every of these phases. The characteristics of the first phase may be the ambivalence about the attempt, the concerns or hopes invested in it, the immigrant's feelings of guilt for those left behind, the rituals of farewell that aim to relieve the grief of separation. In the case of persecution, it is usually fear, anguish for the lost community and land or rage against the prosecutor that prevails. However, this period is also known as the “**healthy immigrant**” period where all the individual and collective expectations about the new life that is unfolding work as protectors for developing psychopathological symptoms. Bobwick and colleagues had recently studied this phenomenon among 250 migrants coming from different countries in Spain and better mental health indicators were found during the first 10 years of immigration compared to native population, after adjusting for perceived friendship and support, marital status, income, sex and age [50]. However, findings are not consistent throughout the literature and, in the same year, Cayuela and colleagues found worse self-perceived mental health among immigrant working women compared to their similar native counterparts [51].

During the transition process, especially in cases of illegal immigrants, people are often exposed to misadventures and risks. During this phase, like in the previous one, the immigrants, in order to cope with the mental and physical hardship they may idealize the host country and society. The attempt of adaptation to this new environment is connected to the phenomenon of acculturation. This term refers to the impacts on a person after contacting with an unknown cultural community and to the consequences of these impacts on the psychological and social life of the individuals [52]. Four types of reaction to the acculturation impacts have been described:

- 1. Isolation.** The immigrant avoids communication with the people of the different cultural group, except the necessary ones. Absorbed by groups of persons with similar cultural and ideological features and occasionally he/she may develop ideas of contempt, rivalry or hostility towards those that are different or strange. Some phenomena of fanaticism (e.g. in extreme cases acts of terror) may be explained within the range of the social psychology as manifestations of the tendency for isolation.
- 2. Over adaptation or assimilation.** When immigrant seeks to incorporate the way of life of the host country neglecting the former cultural identity (e.g. language, dressing codes, main values). Trying to not differ from natives can lead to an obsession and it often implies rejection of the origin culture. Occasionally this attitude leads to loss of valuable supportive structures and to conflicts (e.g. between immigrant parents and their children)
- 3. Marginalization.** People that present psychological vulnerability can neither satisfactorily nor consistently select one of the two previous ways to manage the impacts of acculturation. As a result, they can lose their traditional bond and do not successfully developing new ones, ending up socially marginalized with many or all of the associated negative aspects of marginalization (higher risk of alcohol abuse, conflicts with law)
- 4. Integration to the new environment without withdrawal from the former one.** This is the most successful way to adjust and its achievement depends not only on individuals but also on the existence of supportive structures, attitudes and policies that address immigrants needs in the host country.[53]

Acculturation and its related factors (family structure, religious beliefs, power relationships between majority and minority groups, ethnic identity, perceived discrimination and social stigma among others) has been used in research as a contributing factor of health care disparities among immigrants [54].

During the last decades, many scientific works have dealt with the epidemiology of the mental disorders among different groups of immigrants in comparison to the epidemiology of the same disorders among the native population. For instance, Psychotic disorders have been linked with the migration stressor among vulnerable individuals, and there is evidence of an increased risk of schizophrenia among first and second generation immigrants compared to native-born in Europe [55]. However, results are still not homogeneous and there are not enough evidence for concluding that migration by itself is a causal factor for mental morbidity [53]. A combination of social, cultural and individual factors of the migrants (that often coexists such as discrimination and social adversity) and host country characteristics are being seen as the possible model for explaining the development of psychiatric disorders among migrant communities [56].

Ethnic identity and the related process of acculturation are some of the important factors to consider when examining psychological factors that are potentially related to psychiatric service use among any ethnic minority. Ethnic identity refers to one's sense of self in broad terms including culture, race, language or social belonging [57] and applies across multiple racial and ethnic groups [58]. The key elements of ethnic identity include self-identification as a group member, attitudes and evaluations relative to one's group, attitudes about oneself as a group member, extent of ethnic knowledge and commitment and ethnic behaviors and practices [59]. Ethnic identity has been persistently identified as a predictor for lower use of mental health services [60].

3.4 Barriers to access and retention to care among Latinos

According to the Andersen behavioral model [61], we understand disparities in access, or inequitable access, as conditions under which social and cultural (understood as contextual factors) factors (such as ethnicity) and enabling variables (such as income) are major predictors for service use. This model envisions culture or ethnicity as a social factor, that interacts with needs factor (such as mental health condition) and demographic factors producing significant ethnic differences in utilization rates which may lead on the origin of inequity. For example, studies suggest that cultural differences affect perceived need for mental health services among Asian Americans because many Asian cultures do not differentiate psychological from somatic distress, so that patients from these cultures may encounter a lack of correspondence between their complaints and what mainstream medical psychiatry offers to them [62]. However, more research is needed to identify cultural factors that intervene to access of care. In this same model, described by Andersen, patients' beliefs and experiences also influence the propensity

to seek services in the presence of perceived need. Culture and collective identity, again, will play a role on shaping this experiences and beliefs towards mental health services [62]. Nonetheless, culture and ethnicity are not the only factors related to hindering the access to mental health services. The first barrier to access in mental health treatment is lack of recognition of problem [17, 63] or “wanting to handle the problem in one’s own”.

It is well known that income and poverty play an important role in accessing services [64, 65]. Limited finances, time commitment, transportation issues, Educational background, parent’s educational background, stigma and gender are other factors well-related with lower access to mental health services [17, 63, 66].

Unfortunately, immigrants coming from middle or low-income countries tend to accumulate more than one of these individual factors [67-69].

Concisely, individual and contextual inequalities that may be independent of patients’ needs exist in the use of general health care and mental health services. At the individual level, low socioeconomic status, being over age 60, being male [70-72] and being an immigrant [73-75] have been associated with a lower likelihood of visiting mental health services.

Literature shows that immigrants in need to receive general healthcare [76] and mental health services tend to access less than natives, in Spain and in US [4, 7, 49, 73, 77-80] Rocha and her collaborators found that in a sample of 5938 adults in need of receiving mental health services in Spain, 55% visited a psychiatrist in the last 4 weeks. Individuals older than 65 and immigrants coming from low-income countries were less likely to report a visit.

In summary, a complex array of psychological, cultural, social, and demographic factors influences an individual’s entry into mental health care [81]. Thus, developing effective strategies for decreasing barriers to care is a critical task for both clinicians and administrators. According to Andersen’s healthcare utilization model, improving access to care is best accomplished by focusing on contextual as well as individual determinants that shape an individual’s health behaviors [61, 82, 83]. Both contextual and individual factors will be comprised by predisposing (i.e. demographic characteristics of a community or an individual), enabling (i.e. income dedicated to health in a community or by an individual) and need factors (i.e. perceived needs of an individual). Social and cultural characteristics of the individual in his/her context (i.e. educational level, ethnic and racial composition, and employment level) are also factors that can influence

adherence to care [84]. Social and cultural factors determine the status of a person in the community as well as his or her ability to cope with presenting problems and command resources to deal with those problems. At the individual level, measures associated with utilization of health care include an individual's occupation, financial income, health insurance, ethnic identity and affiliations. For instance, low-income has been related to a higher use of primary care and out-patient services presumably explained by a higher medical need [85]. These factors are able to potentially facilitate (or impede) access and retention to services [86-89]. Among the individual factors, demographic characteristics such as gender and age of the individual represent key variables that suggest likelihood to access and retain to health services [90-93]. Overall, women appear to be less likely to use substance use treatment services [92, 94], and are among those at most risk for not accessing mental health treatment when needed [80]. Some research has showed women retaining more in treatment when higher income and education and in specific treatment settings such as jails, primary care or private residencies [95-97]. The model explains how clinical symptoms and severity of medical conditions of the individual may play an essential role in shaping people's use of health care services. However even this factors are mediated by contextual factors[85].

3.4.1 Retention in care

Retention in care has a variety of definitions; it is the process by a patient achieves a successful treatment for a medical condition. This definition does not imply a completing a treatment, which is defined by completion rate, even though most of treatments have adjusted their durations according to their effectiveness. Adherence to treatment could be seen as a synonymous of retention. By engagement we normally understand the process of starting treatment (attending the first or the two first visits).

Another bulk of literature analyses the opposite of retention i.e. early treatment drop out, attrition of treatment or treatment discontinuation and all factors related to it.

A well-known review states that only 41% of people with mental disorders in US initiate any mental health services, and of those, only a third (32.7%) retain in a minimally adequate treatment [72].

Recent meta-analysis done by Fernandez and colleagues that analyzed rates of treatment drop out and mediators to it in 115 different studies that involved 20995 participants receiving CBT for a range of mental health disorders, showed that 16% of patients never started treatment when offered, and 26.2% dropped out during treatment. Dropout was significantly associated with diagnosis, with depression having the highest

attrition rate; format of treatment delivery, with e-therapy having the highest rates of drop-out; treatment setting, with fewer inpatients than outpatient dropouts; and number of sessions, with treatment starters showing significantly reduced dropout as number of sessions increased. Dropout was not significantly associated with client type (adults or adolescents), therapist licensure status, study design (randomized control trial, RCT vs. non-RCT), or publication date [98]. Literature suggests that once treatment is started it is less frequent to drop out so most of the efforts are dedicated to increase the number of patients entering in treatment [99].

Therefore, retention in psychotherapy can be boosted tackling into the same factors that demonstrated a relationship with drop-out. For instance, there is increasing research on “engagement interventions” that comprises all the interventions aim to increase treatment initiation and retention by addressing various predictors and barriers related to mental health service use. Some of the findings are increasing education, reminder calls before the first appointment and using motivational interviewing techniques before the first session [100]. Once in treatment, interventions that address mental health knowledge and attitudes and barriers to mental health treatments show the greatest retention rates in mental health services [101]. Other well studied mediators are provider’s communication skills in medical care and patient’s health literacy, both are highly correlated with better patient adherence [102, 103].

Social determinants for health have been found to be moderators of treatment retention and are worthy to be better studied [104-106], socioeconomic position, educational background, food insecurity, legal status, health care insurance and housing among others have demonstrated to be more important than acculturation factors when analyzing access and retention to care among immigrants [107].

Comparable to access to care results, immigrants tend to present lower retention in care. Cultural adaptations of interventions, therapist ethnicity matching, use of cultural mediators, therapist cultural competence training and use of interpreters are some of the interventions that demonstrated efficacy in avoiding drop out and enhance retention in treatment [108]. More research is needed to further comprehend culture and social-specific barriers and how to address them. Culturally associated stigma or the so-called double stigma is also highly associated with reported barriers to retention to mental health care among Latinos and other immigrant groups [68, 69].

Factors related to acculturation like sense of belonging within the context one resides, family support, ethnic identity, acculturative stress, and perceived discrimination have also been identified as potential barriers to care [109, 110].

3.4.2 Latino subpopulation studies

Latino population is a heterogeneous group of study; health perspectives of Mexicans living in the United States, for example, are likely to differ from Puerto Ricans or Cubans in the same country, but also will be very different from Ecuadorians or Colombians that migrated to Spain. Heterogeneity has often been seen as a challenge; a complexity hard to overcome and it is one of the reasons of reduced research in the field [111].

Latinos have lower socioeconomic status than do non-Latino whites in United States and compared to natives in Spain. For instance, 39.4% of Latinos do not have a high school degree compared with 10.6% of non-Latino Whites [79]. 20.7% of Latinos are living below the U.S. federal poverty level compared to 9% of non-Latino Whites and Latino households are more likely to receive food aids [46]. Finally, Latinos are more likely to be unemployed in United States and in Spain compared to non-Latino Whites [46, 79].

Socioeconomic position has been seen as the main factor to such disparities [107]. However, other factors related to acculturation process have been pointed to contribute to health disparities. Among other important factors that we have already presented, discrimination has been one of the studied factors that have demonstrated to be a predictor for increased risk for any DSM-IV lifetime among Latinos, in United States and in Spain [112]. Everyday discrimination is one of these factors. It plays a moderator role in a wide range of analysis (i.e., risk of being a current smoker, increases risk of alcohol dependence) and it has proven to delay access to care among Latinos.

Other concepts that need to be acknowledged when studying Latinos mental health are “familismo” and “the Latino health paradox”.

“Familismo”. It refers to mutual support and obligation between family members [113]. Is comprised of our core tenets [114]: a) belief that family comes before the individual; b) familial interconnectedness; c) belief in family reciprocity; and d) belief in familial honor. Its behavioral manifestations include financial support, shared living, shared daily activities, childrearing and support for immigration [115]. It has been associated to high degree of ethnic identity (seen as a specific form of it) and therefore, lower prevalence of lifetime psychiatric disorder and with positive aspects of well-being [116, 117]. In the same time, it has also been related with reduced use of mental health services with lower rates of healthcare access and retention compared with individuals expressing lower levels of “familismo” and ethnic identity [118].

“The Latino health paradox”. Even though social stressors exposure that would lead Latinos to a vulnerable group for developing mental health disorders, Latino immigrants keep a better mental and physical health and lower behavioral problems (lower drug use, domestic violence, and crime rates and gangs integration) compared to those Latinos born in the United States. As the healthy immigrant process explained above, after years

of immigration and first and second generations after immigration, this behavioral and physical health decreases until being worse than non-Latino whites [119, 120]. Multiple hypothesis have been described to explain this phenomenon, however, after years of research in the field, the Latino health paradox is a discussed phenomenon due to methodological issues of the supporting literature and persistence of studies that conclude a worsening health among Latinos [107].

3.4.3 Access and retention to mental health programs among Latinos

Literature consistently shows Latinos disparities in mental health utilization and quality of care [121].

In US, Latino immigrants are less likely to utilize mental health services than non-Latino [122]. When Latinos receive mental health services, these tend to be of less quality. For example, Latinos are less likely to receive evidence-based treatments than non-Latinos [121] and studies have replicated this finding by demonstrating low treatment accurateness when treating Latino patients with depression and Anxiety [123]. Clinical outcomes are often worse for Latinos than non-Latinos, in part due to premature drop out of treatment; a national study found that Latinos were three times more likely to drop out of treatment prematurely than non-Latinos [25]. In order to review the effectiveness of current treatments in Latino populations, Miranda and colleagues reviewed numerous studies of psychotherapy interventions for children and adults and found that evidence-based interventions were equally effective for African American and Latino as they were for non-Hispanic whites [124]. However, Sue et al (1991) found that Latinos showed better treatment outcomes and lower probability of premature treatment termination when they were ethnically and linguistically matched with their therapist [125]. A lack of providers who speak Spanish or are familiar with the cultural values and traditions of Latino patients is seen as a barrier of service use [78]. Thus, culturally adapted interventions are showing significant improvement in service outcomes for Latinos [126]. In Spain, literature regarding mental health services utilization among Latinos and migrant in general is rare. Some studies have identified a lower use of healthcare services among migrant population [67, 127], however none of them have reviewed use rates or use characterizes of mental health services among Latino immigrants.

Perceived barriers to behavioral health treatment can be identified at the individual or attitudinal and structural or systemic levels [128-130]. In Table 2, we show the factors that act as barriers to an optimal behavioral healthcare among Latino population. This is a dynamic list as research is continuous on this topic.

As Latino population comprises a very diverse group of subpopulations, there are some barriers that will be specific for country of origin or gender/age-specific. For instance,

among Latinas, social isolation, discrimination and dedication to the children and family unity have been identified barriers to help seeking and access to mental health programs [18]

The ability to identify barriers to care provision can help ensure early identification of behavioral disorders, thus advancing the public health goal of detection and treatment.

Table 2: Barriers to access and retention in care among Latinos

Attitudinal barriers to care	Structural barriers to care
<p>cultural mistrust of the mental health system [131, 132]</p> <p>desire to handle the problem on one's own,[17]</p> <p>and perceived discrimination by health care providers [77, 133]</p>	<p>lack of ethnic/racial match between patient and provider [77, 134]</p> <p>lack of health insurance, low socioeconomic status [19, 128]</p> <p>low English proficiency [135, 136]</p> <p>lack of transportation</p> <p>difficulties in scheduling appointments</p> <p>lack of child care</p> <p>Inability to take time off from work</p> <p>limited educational attainment [19, 77, 78, 137]</p>

3.5. Behavioral health co-occurring disorders

Substance use disorders and mental disorders influence each other, and their combined presentation results in more profound functional impairment; worse treatment outcomes; higher morbidity and mortality; increased treatment costs; and

higher risk for homelessness, incarceration, and suicide than each of the individual disorders [138-141]. Existing literature suggests that individuals with co-occurring mental health and substance abuse disorders (COD) access mental health and substance use treatment at extremely low rates compared to individuals without such co-morbidities [142, 143]. Although current treatment guidelines recommend that people with co-occurring disorders receive treatment for both conditions [144-146], only 9.1% of individuals with COD received both mental health care and substance use treatment in U.S and 52.5% of people with COD did not receive any type of care (received neither mental health care nor substance abuse treatment) [147]. In U.S., mental health clinicians and researchers expected that provisions of the Affordable Care Act (ACA) would facilitate access to and integration of mental health care and substance use treatment for adults with co-occurring disorders [148-152], however one of the first studies, using a large, nationally representative data set, that analyzed treatment patterns for US adults with COD before and after the ACA's expansion of coverage period did not show any improvement in service use for COD [147]. Integrated treatments are among the most effective strategies for decreasing both substance use and mental health symptoms in persons with COD [153, 154]. However, just as each population of individuals with COD has specific treatment needs, these populations face unique barriers that may inhibit their ability to access specialized treatment [155].

3.6. The International Latino Research Partnership Project (ILRP)

The ILRP is a National Institute of Drug Abuse (NIDA) funded multisite research project (R01DA034952-01A1) that brings together research institutions and their partnering community clinics in Boston, Madrid and Barcelona. The study was approved in March 2013 and it is coordinated by Professor. Margarita Alegria from the Disparities Research Unit at the Massachusetts General Hospital in Boston, US. Following the evidence of a growing number of migrants from Latino America in host countries like Spain and the U.S. and the increasing literature on barriers to behavioral health and acculturation symptomatology that leads to higher rates of drug abuse and behavioral disorders, the project proposed three aims: 1) develop an international partnership and research collaboration to support research that can improve accessibility, quality and outcomes of integrated behavioral health services for migrant Latinos with co-occurring substance use, mental health problems and/or HIV risk in primary care clinics; 2) harmonize data across research sites; and 3) conduct behavioral health services research focused on rapid screening, referral, and integrated behavioral health services research for migrant Latino populations with co-occurring substance use, mental health problems, and HIV risk in primary care clinics. This last aim involves conducting a Randomized Clinical Trial that screen Latino immigrant population for mental health and substance abuse disorders in Madrid, Barcelona and Boston and tests an integrative psychotherapy intervention to improve mental health and reduce substance abuse symptoms.

The project has involved more than 40 people including senior researchers, clinicians, supervisors, project managers and research assistants distributed in the three sites.

IRLP is currently facing the last three months of the project where data from the randomized clinical trial is being analyzed in detail to produce the last round of research articles.

Four areas of research (partnership collaboration and data sharing among sites, clinical trial, intervention development and Latino immigrant studies) lead to more than 10 articles published until the moment. The study of barriers to care and how barriers are related to adherence to a culturally sensitive intervention for Latinos is an area of knowledge with multiple gaps that this thesis attempts to resolve.

4. OBJETIVES AND HIPOTHESIS:

4.1. Aim and objectives:

The aim of this thesis is to better comprehend the role of barriers to access and retention in mental health and substance abuse services among immigrant Latinos with co-occurring disorders in two different host countries, Spain and the United States of America.

For that purpose, the specific objectives included in the studies that build up this thesis are the following:

1. To identify and compare perceived barriers to retention in mental health and substance abuse treatment among Latinos in Boston, Madrid and Barcelona who had received or were receiving services;
2. To identify clinical, social and cultural factors that contributes to the identified barriers to retention in behavioral care among Latinos immigrants
3. To understand whether the frequency of behavioral health care use in the previous year was related to the reported barriers, clinical, cultural, social factors or site
4. To analyze the association between reported barriers to access and retention in care and adherence to treatment of a culturally adapted integrative therapy for Latinos with co-occurrence of depression, anxiety or post-traumatic stress disorder and substance abuse symptoms in the three sites.
5. To assess clinical, social and cultural factors related to treatment adherence as well as treatment engagement of a culturally adapted integrative therapy for Latinos with co-occurrence of depression, anxiety or post-traumatic stress disorder and substance abuse symptoms in the three sites.
6. To understand how social, clinical and cultural factors related to adherence are involved with barriers to retention in mental health and substance abuse treatment.
7. To review the scientific literature on barriers in care among immigrants to provide future research hypothesis

Objectives 1 to 6 correspond to the two clinical studies and objective 7 is mainly developed in the review article

4.2. Hypothesis:

1. Specific barriers among Latino immigrants could be identified by systematically interviewing Latino immigrant population through validated questionnaires
2. There are differences in reported barriers in care among immigrant Latinos regarding the host country. Language barriers would be higher in U.S. compared to Spain.
3. Social and cultural factors such as ethnic identity and citizenship status would be related to the reported barriers to retention in care among Latino immigrants. Clinical factors such as symptoms severity or disorder diagnostic could be related to an increasing number of reported barriers.
4. Individuals perceiving fewer barriers would report higher use of services. Severity of mental health or substance abuse symptoms would be associated with higher use of services. Latinos who migrated to Spain would report higher use of services comparing to those in US, due to the differences in health care system.
5. Clinical factors such as severity of mental health symptoms would be associated to higher adherence to treatment compared to those with lower symptom severity
6. Most prevalent barriers would be associated with lower rates of retention to intervention. People reporting a higher number of barriers will be less likely to participate in the intervention.

5. THESIS RESEARCH PLAN

The thesis project was designed and developed within the framework of the International Latino Research Partnership. It includes two clinical studies and a review. All three studies together seek to respond to the study objectives.

- **First study:** An observational descriptive study that aimed to identify and compare perceived barriers to retention in behavioral health care among Latinos in Boston, Madrid, and Barcelona who had used or were using mental health services. The study also aims to identify clinical, cultural, and social factors as correlates to these barriers; and finally, seeks to understand whether the frequency follow-up of behavioral health care use in the previous year was related to the reported barriers to care. Study activities were conducted from between July 2013 and August 2014.
- **Second study:** An interventional study which examines the factors related to treatment retention and treatment interruption of a culturally adapted integrative therapy for Latinos with co-occurring disorders (mental health and substance abuse) in Boston, Madrid and Barcelona. We evaluate predictors of three groups of participants: participants who never initiated treatment; participants who dropped out before completing treatment and those who completed treatment (six sessions or more of IIDEA intervention). Intervention activities were conducted between September 2014 and February 2017 and the data analysis was done right after ending the intervention.
- **Third study:** We developed a critical review on access and retention in care among immigrant population. We reviewed the existing literature in the field and contributed with our own research and clinical experience for the writing process. The article was written during the first semester of 2017 and published in September 2017

6. METHODOLOGY

Methodology of the clinical studies is explained below. The last paragraph of section 6 describes the methodology procedures of the critical review.

6.1. Study sites and time

Project activities were settled in Boston, Madrid and Barcelona.

The Disparities Research Unit at Massachusetts General Hospital in Boston partnered with community health clinics, HIV centers, mental health and substance abuse treatment centers and community's agencies to develop recruitment, assessment and intervention activities in Greater Boston area including Chelsea, Revere, Lawrence, East and South Boston and Cambridge.

In Barcelona, the Transcultural Psychiatry program at Vall d'Hebron University Hospital partnered with more than 10 different centers including primary care centers, mental health and substance abuse community clinics, HIV treatment centers and community agencies such as "Mujeres palante" or "Fedelatina".

In Madrid, the Psychiatry service at Fundación Jimenez Diaz University Hospital partnered with community health centers, HIV treatment clinics, mental health and substance abuse treatment centers and community's organizations all over the city to achieve the research goals.

Research activities took place between September 2014 (first screening interviews) and February 2016 (last sessions of the intervention) within a 4 years' research project.

6.2. Study population and participants

The research team aimed to approach Latinos in need of behavioral services using a community approach. Potential participants attending primary health clinics, mental health and substance abuse treatment centers, HIV clinics and community agencies were asked to participate in the studies within the framework of ILRP. The project also accepted referrals by other participants (word of mouth referrals). Participants were deemed eligible for the study if they met the study specific inclusion criteria and none of the exclusion criteria.

6.2.1. Inclusion and exclusion criteria

For the 1st study: **inclusion criteria** were:

- 18 or more years old, self-identified as first- or second-generation Latino (from any Spanish-speaking Caribbean, Central or South American country) and living in Boston, Madrid or Barcelona cities.
- Participants who have been at least 1 year in the host country (Spain or U.S.) and
- reported Behavioral healthcare service use in the last year by either getting a prescription, being hospitalized for behavioral health problems or having received psychotherapy/psychiatry visits
- Willingness to participate in the study
- Written informed consent

Exclusion criteria were:

- Acute suicidality (individuals who scored 4 or 5 in the 5-items Paykel scale [156]), in that case, they were referred to emergency department.
- History of Psychotic or Bipolar disorder using IMPACT study questions (ref)
- Demonstrated cognitive impairment by the interviewer (ref)

For the 2nd study, **eligible criteria** were:

- 18 or more years old, self-identified as first- or second-generation Latino (from any Spanish-speaking Caribbean, Central or South American country) and living in Boston, Madrid or Barcelona cities.
- case participants that have been screened positive for COD (substance abuse or mental health symptoms) based on the AC-OK screener scale for behavior disorders [157] and randomized in the intervention arm for receiving IIDEA intervention
- Not received Behavioral service in the last 3 months and not having an appointment with behavioral health within a month.
- Willingness to participate in the study
- Written informed consent

Exclusion criteria were:

- Acute suicidality (individuals who scored 4 or 5 in the 5-items Paykel scale [156]), in that case, they were referred to emergency department.
- History of Psychotic or Bipolar disorder using IMPACT study questions [158].
- Evidence that the participant lacks capacity to consent to the study (as measured by a validated capacity to consent screener [159]).

6.3. Study procedures

6.3.1. Recruitment procedures

The ILRP employed a variety of recruitment strategies that considered overall study goals and site-specific context. Participants were recruited from community-based clinics and organizations in Boston, Madrid, and Barcelona. Research assistants approached potential participants in waiting rooms, contacting individuals by phone when contacts were provided by primary care physicians or other participants, and in community agency's events and meetings.

6.3.2. Assessments procedures

All participants provided written, informed consent prior to participating in the study. After obtaining informed consent, research assistants conducted screening interviews followed by baseline interviews using a tablet computer. Interviews were conducted in Spanish or English, in each clinic or community setting, and all were audio recorded for quality control follow-up. Eligibility for co-occurring disorders (depression, anxiety, post-traumatic stress disorder and substance abuse disorder) was based on the AC-OK screener scale for behavior disorders, a 15-item questionnaire about mental health and drug abuse symptoms that was previously validated in Spanish [160]. Eligibility for the intervention was based on participant's affirmative response to two mental health questions and two positive substance use questions. Sensitivity and specificity of the questionnaire was shown to be consistent after being determined with standardized screeners (PHQ-9, GAD-7, PCL-5, AUDIT, DAST-10 and BDEPQ). Internal consistency was comparable to the original English sample being $\alpha=0.82$ for mental health and 0.90 for substance abuse. Trained interviewers conducted research assessments (baseline, 2, 4, 6 and 12 months' follow-up) in Spanish (n = 276) or English (n = 5) depending on participant language preference. Interviews were audio recorded, lasting approximately one hour (mean=68.2minutes; standard deviation=21.6 minutes). Participants were compensated with \$40/€30 gift cards for the assessment, but not for participating in the treatment sessions.

6.3.3. Intervention procedures

The second study used case participants of the IIDEA clinical trial. Case participants were randomized to an intervention and usual care group. Eligible participants were randomized using Stata to generate a stratified block randomization scheme. Eligible participants were randomized to intervention or control group in a 1:1 ratio for each 2-person block. Stratified by recruitment site and then by therapist, each patient had a 50% chance of being assigned to the intervention group. Randomization was conducted only after patients had given consent and finished the baseline assessment to prevent allocation bias. Randomization was conducted by an independent research staff member

who was not involved in data collection. Research assistants were blind to study condition during the assessments.

A member of the research team contacted participants randomized to the intervention group to schedule a first appointment with a clinician. Clinicians were also randomized according to patient's availability. Motivational interviewing techniques were used before the first session to optimize patient participation in the intervention[161].

Control group continued their usual care routine with their primary care physician. To address potential symptom attenuation, a care manager called usual care participants 4 times to administer the same brief assessment used in the clinical sessions to see how the patient was doing in different areas. The care manager also assisted with the referral process to specialized substance use/mental health services, which was provided after the completion of the usual care calls, if the patient wished.

6.4. Study intervention

The Integrated Intervention for Dual Problems and Early Action Program (IIDEA) was designed with the objective of maintaining fidelity to evidence-based approaches (such as cognitive therapy) and substance use recovery treatment approaches, while addressing a range of mental health conditions including depression, anxiety, traumatic stress and mild to moderate drug and/or alcohol abuse in Latino adults. Conceptual foundations for the IIDEA Manualized Therapy and rationale for early action were based on the objective of creating a brief, Trans diagnostic therapy model with the potential to address mental health disorders and early symptoms of drug, alcohol and benzodiazepine abuse problems, adapted to engage and retain Latino immigrant adults. The IIDEA program is a ten-session cognitive-behavioral intervention of 60 minutes, delivered weekly over three to four months. An option for two additional booster sessions is included for patients who require supplemental sessions because they are symptomatic. The program is delivered by study clinicians trained in the intervention and who attend weekly supervisory meetings. The intervention design integrates elements of cognitive-behavioral therapy, motivational interviewing, relapse prevention, assertive communication, and HIV/STD risk prevention. Depending on the participant's circumstances and needs, the intervention is delivered in person or over the phone. In cases where the participants had difficulties with child care or were sick, after being randomized, home visits were also offered. The goal of the program was to engage, elicit, and improve participant's coping skills to reduce symptoms of depression, anxiety, PTSD; to improve assertive communication skills; to reduce or eliminate alcohol and substance use; and to reduce HIV and STD risk behaviors. The development of the

IIDEA program is discussed in the paper “Development of the IIDEA Therapy for Latino Immigrant Adults with Co-Occurring Disorders (Fortuna, under review)”.

6.5. Study assessments

Barriers in care. To assess perceived barriers in behavioral health care, we asked participants about eleven potential barriers that they might have experienced tied to behavioral health services. They were selected from the most representative literature on the field. The eleven potential barriers were divided into attitudinal (related to the individual’s feelings and values) and structural barriers (related to the health care system). Attitudinal barriers included wanting to handle a problem on one’s own, thinking treatment would not work, concerns about stigmatization, fear of involuntary hospitalization, and concerns about poor treatment due to one’s ethnic/racial background. Structural barriers included not knowing where to go or whom to talk to about problems, fear of not knowing how to communicate problems due to language barriers, previous negative experiences with treatment, treatment cost, and problems with transportation and scheduling times. Participants answered “yes” or “no” to indicate if they had experienced each of the eleven barriers and had the opportunity to add any other additional barrier they had faced that was not described in the assessment.

Social and cultural factors. In order to assess the relationship between social and cultural factors related to immigration and barriers to behavioral health care, participants were asked three questions pertaining to discrimination that affects Latinos and other minorities, derived from the National Latino and Asian American study ($\alpha=0.78$) [113]. To assess family conflict, we used 4 items of the Family/Culture Stress subscale of the Hispanic Stress Inventory (HSI) ($\alpha=0.76$) [114] designed to measure family’s interference with personal goals, arguments with family members, and the breakdown of the family unit. Sense of belonging was assessed using 1 item from the Family/Culture Stress subscale of the HSI [114]. The three-item Ethnic Identity Scale ($\alpha=0.78$), derived from the 35-item Cultural Identity Scale for Latino Adolescents [115] was used to gauge cultural identity.

Behavioral service use. We constructed a continuous variable of number of days of hospital stays for mental health or substance abuse problems and number of visits for psychological counseling or psychiatry lasting 30 minutes or more in the last 12 months.

Clinical factors. To measure depression, we used the Patient Health Questionnaire (PHQ-9) ($\alpha= 0.89$), which assesses DSM-V criteria upon which a major depressive disorder diagnosis is based [116]. We also administered the General Anxiety Disorder

7-item Scale (GAD-7) ($\alpha = 0.90$), a brief clinical measure for the assessment of generalized anxiety [117]. To assess for trauma, we included the Brief Trauma Questionnaire, a (BTQ), a 10-item self-report measure that examines experiences with potentially traumatic events [118], and the Post-Traumatic Stress Disorder Checklist (PCL-C) ($\alpha = 0.96$) [119], a self-report measure of the 17 DSM-IV symptoms of PTSD. Substance use was measured with the Alcohol Use Disorders Identification Test (AUDIT) ($\alpha = .90$), a World Health Organization (WHO) screener for excessive drinking [120]; the Drug Abuse Screening Test (DAST) ($\alpha = 0.90$) [121], a 10-item, yes/no self-report instrument designed for clinical screening of substance use; and a selection of 8 items from the Benzodiazepine Dependence Questionnaire (BDEPQ) ($\alpha = 0.87$) [122], designed to measure dependence on benzodiazepine tranquilizers, sedatives and hypnotics.

Health Literacy. Health literacy was measured by using three questions from the Health Literacy Screening Questionnaire [123] which assesses participant's ability to perform basic reading and numerical tasks to understand health care information. One of the questions asks "How confident are you filling out medical forms on your own?" One item was taken from the Single Item Literacy Screener (SILS) [124], which is designed to identify patients with limited reading ability in diverse populations.

Demographic variables. Demographic variables included age and gender and auto defined race and ethnicity. We also collected highest education received, economic status (organizing it in 2 categories; living check to check or poor and living very well or comfortably, immigration status (defined by citizen or non-citizen), employment status

For the second study in addition to the assessments described above, we included:

Adherence to IIDEA intervention. We measured adherence by the number of sessions attended. A non-initiated group were cases that were contacted by a RA or clinician but that never started the treatment intervention. Attrition group were those making 1-5 sessions, and the Completion group were those attending six or more sessions of the intervention program. We selected six or more sessions as that represented getting all the core elements of the intervention.

Among the clinical factors we also collected data about time they had spent in the host country (US or Spain) and number of visits to their country of origin in the past 12 months

Clinical factors analyzed included the ones described above and also smoking habit measurement by using the Fagestorm Test for Nicotine Dependence, a standard instrument for assessing the intensity of physical addiction to nicotine. The test was

designed to provide an ordinal measure of nicotine dependence related to cigarette smoking. It contains six items that evaluate the quantity of cigarette consumption, the compulsion to use, and dependence [162]. Finally, we created a composite construct for substance use, including the AUDIT-C, DAST-10 and selected items from the BDEPQ and a composite construct for mental health, including the PHQ-9, GAD-7 and PCL-5, where these measures were all standardized to a scale of 0-100. The composite construct is the average of the corresponding standardized measures added together. For instance, AUDIT-C, DAST-10 and BDEPQ were three validated scales, each were first standardized into a scale of 0-100. The composite construct for substance use was created by taking the average of these three subscales. Same procedure was taken to create the composite construct for mental health using subscales of PHQ-9, GAD-7 and PCL-5.

6.6. Analysis and Statistical Plan

In the first study, we first investigated the distributions of sociodemographic, clinical measures, cultural, and social factors at each site. We reported proportions for categorical variables and mean and standard deviation for the continuous variables. We relied on regressions to detect any significant site differences in barriers to care. Model coefficients represented the pairwise comparison to the referent Boston site and comparisons between Spanish sites. The *P* values from the regression indicated whether there were significant differences relative to the referent site for each barrier. To address missing data in the variables of interest (<6% missing on barrier measures; <3% in clinical measures*, cultural/social factors, and socioeconomic status variables), we implemented multiple imputation methods using the mi procedure in Stata.⁴⁸ This technique creates 20 complete datasets, imputes missing values using a chained equations approach, analyzes each dataset, and uses standard rules to combine estimates and adjust standard errors for uncertainty because of imputation. To address the missing data in DAST component, we performed a sensitivity analysis, excluding missing DAST data from the model analysis. We adopted logistic regressions to further detect site differences for individual barriers after controlling for other confounding predictors. We used Poisson regressions to assess whether the number of barriers differed for individuals at different sites. Multiple model specifications were adopted for consistent estimation. Finally, we applied Poisson regression with multiple model specifications to identify whether barriers were associated with the number of visits to behavioral health services in the past 12 months.

For the second study, the sample included only participants of the intervention arm divided into the following subgroups according to the amount of received treatment: 1)

patients with no treatment initiated; 2) patients who received from one to five sessions of treatment; and 3) patients that received six and more treatment sessions. We then compared the distribution of socio-demographics, clinical measures, and cultural and social factors among these three subgroups, and reported proportions for categorical variables and means and standard deviations for continuous variables. We relied on the bivariate regression and the Pearson Chi-square test to detect any significant inter-group differences, respectively for continuous and categorical baseline characteristics. We further investigated the subgroup differences in barriers to care and reported *p*-value from the pair-wise comparison to the referent no-treatment group. We further assessed the association between each individual barrier and treatment adherence using multinomial logit models while controlling for other confounding predictors. To mitigate the issue of multi-co linearity among baseline predictors, we employed backward-selection procedure to determine the best model specification and exclude covariates that were weakly correlated with the outcomes ($p > 0.25$). Next, we presented our final model as: Model 1) includes a list of baseline predictors (i.e., education and employment status, benzodiazepine dependence, discrimination as well two measures of barriers to treatment) surviving from backward selection; Model 2) representing an alternative model where the main barrier “willingness to handle the problem in one’s own”, was excluded from the analysis.

The full list of analyzed variables included socio-demographics (age, gender, race, education and employment status), clinical history (a composite construct measuring overall mental health, benzodiazepine dependence, mindfulness and smoking), social and cultural factors (sense of belonging, health literacy, discrimination, ethnic identity, family conflict, acculturation stress, years in the US or Spain and number of home visits in the past 12 months).

For the statistical analysis, the Stata® (v. 14) [163] software was used.

6.7. Review procedures

For the review, we proceeded to review the literature that focused in interventions aiming to improve access and retention in care among immigrant populations. Following the review's protocol, a computerized search strategy was applied to Medline and SCOPUS databases to identify potentially relevant articles published before March 2017. A highly sensitive search string was developed with database-specific medical and social subject headings for "migration", "immigr*", "access to care", "retention in care", "adherence" and "psychotherapy intervention" (Example of Scopus Search: immigration AND access to care). These searches were complemented by cross-references from the retrieved articles.

Being a viewpoint article that sought narrative from clinical and research experience from the authors, we also used our insights and experiences to create the article. All the co-authors met formally four times (first time in February 2017) in order to build the paper. In the first meeting, we discussed the article structure and divided the parts to develop according our personal experience. The second meeting helped us to put in common all the literature we have found and decide which of them were the most significant according to our expertise. We met for the third time a week later to organize different paragraph and discuss them. Due to publication constraints, we had to work on choosing which interventions where more important to be mentioned and how to englobe the main ideas in the text. Finally, in the last meeting we agreed in the final format of the text and discussed on how to present it to the journal.

7. RESULTS

Results are here presented in three parts. The first two parts refer to the clinical studies and the third part refers to the review article. All detailed information on results can be found in the published articles attached in section 11.

7.1 First study

7.1.1 Descriptive analysis of the sample and socio-demographics factors

Two hundred eighty-one (281) participants fulfilled the inclusion criteria and none of the exclusion criteria for this study, out of a total of 567 persons included in the ILRP project by the time the first article was published. All participants from Spain were first generation immigrants, while a third of the Boston participants were second generation. Participants from Madrid and Barcelona were similar to participants from Boston regarding gender distribution, racial and ethnic composition and economic status, but not when comparing age, being Boston participants older than those from Spain (Boston vs. Madrid $p=0.002$, Boston vs. Barcelona $p<0.001$). All three sites were similar regarding clinical assessments, except of participants from Madrid and Barcelona being more likely to have lower PTSD symptoms (Boston vs. Madrid $p<0.05$, Boston vs. Barcelona $P=0.08$), higher alcohol abuse (Boston vs. Madrid $p<0.001$, Boston vs. Barcelona $p<0.001$), and higher health literacy (Boston vs. Madrid $p<0.001$, Boston vs. Barcelona $p=0.002$) than participants from Boston. Furthermore, participants in Boston had longer residence in the host country with a mean residency of 27 years. Once the second-generation immigrants are excluded from the analysis, this mean is reduced to 25 years. Participants in Boston experienced a higher degree of discrimination, and reported stronger ethnic identity and a greater sense of belonging than their Barcelona and Madrid counterparts. Compared to Boston, Madrid and Barcelona had a lower share of recruitment from primary care clinics and a higher proportion of patients in clinics specialized for substance abuse treatment. Tables 3a and 3b summarize individual characteristics of the sample.

Note: The analytical sample was limited to patients who had mental health service use in the past 12 months with at least one year residence in US or Spain. Column percentages are reported by site for categorical variables whereas mean and standard deviations are reported for continuous variables. Since Chi square test is not valid for multiple imputed data, we regressed each covariate on site to obtain the p-value. The p-values in regression represent the pair wise comparison to referent site (Boston).

Table 3a: Sample Characteristics by site (n=281)

	Boston (n=111)		Madrid (n=67)		Barcelona (n=103)		p-value (Madrid vs. Boston)	p-value (Barcelona vs. Boston)	p-value (Madrid vs. Barcelona)
	mean or %	SD	mean or %	SD	mean or %	SD			
Socio-demographics									
Age	46.1	(12.7)	40.6	(10.8)	39	(11.0)	0.002*	<0.001*	0.395
Gender									
Male	40%		40%		38%		.	.	.
Female	60%		60%		62%		0.931	0.790	0.750
Race									
Nonwhite	76%		74%		72%		.	.	.
White	24%		26%		28%		0.794	0.486	0.723
Economic status									
Live very well or comfortably	23%		35%		27%		.	.	.
Live check-to-check or poor	77%		65%		73%		0.087	0.450	0.304
Inadequate health literacy	13.7	(6.1)	10.6	(4.4)	11.5	(4.2)	<0.001*	0.002*	0.268
Clinical profile									
Depression (PHQ-9)	11	(6.7)	10.1	(6.6)	11.4	(6.6)	0.383	0.692	0.228
Generalized anxiety (gad-7)	8.8	(6.1)	7.4	(5.4)	8.1	(5.0)	0.125	0.417	0.420
Ptsd (pcl-c)	43.2	(18.3)	37	(16.5)	39	(17.5)	0.024*	0.084	0.475
Drug abuse (dast)	1.2	(2.6)	2.1	(3.1)	1.4	(2.6)	0.033*	0.467	0.131
Alcohol abuse (audit)	3.9	(7.6)	9.3	(9.6)	8.6	(9.8)	<0.001*	<0.001*	0.628
Trauma exposure									
No	13%		9%		11%				
Yes	87%		91%		89%		0.393	0.567	0.715

Table 3b: Sample Characteristics by site (continuation) (n=281)

	Boston (n=111)		Madrid (n=67)		Barcelona (n=103)		p-value (Madrid vs. Boston)	p-value (Barcelona vs. Boston)	p-value (Madrid vs. Barcelona)
Cultural, contextual and social factors									
Citizenship									
Noncitizen	28%		39%		44%		.	.	
Citizen	72%		61%		56%		0.133	0.017*	0.528
Sense of belonging									
No	24%		39%		49%		.	.	
Yes	76%		61%		51%		0.032*	<0.001*	0.213
Years in US/Spain	26.9	(12.8)	12.1	(7.6)	12.2	(6.6)	<0.001*	<0.001*	0.987
Number of home visits in the past 12 months									
	0.4	(0.8)	0.4	(0.7)	0.3	(0.6)	0.979	0.730	0.779
Discrimination scale	1.2	(1.4)	0.8	(1.1)	0.9	(1.3)	0.024*	0.067	0.522
Ethnic identity scale	9.7	(2.1)	8.7	(2.6)	9	(2.3)	0.005	0.023	0.441
Family conflict scale	2.3	(2.3)	1.8	(2.0)	2.6	(2.4)	0.151	0.351	0.026
Recruitment Site									
Primary care clinics	53%		31%		40%		.	.	.
Mental health clinics	26%		31%		23%		0.064	0.610	0.182
Substance abuse clinics	14%		34%		26%		<0.001*	0.012*	0.193
HIV clinics	1%		3%		10%		0.794	0.177	0.251
Community agencies	1%		0%		1%		0.988	0.799	0.988
Number of service uses in the past 12 months									
	11.6	(13.2)	9.1	(14.1)	8.7	(11.3)	0.198	0.086	0.848
Region of origin									
United States	29.7%		0.0%		0.0%		.	.	.
Central America	29.7%		1.5%		11.7%		0.994	0.992	0.999
South America	9.9%		86.6%		81.6%		0.993	0.990	1.000
Caribbean	11.7%		11.9%		5.8%		0.993	0.992	1.000
Other	18.9%		0.0%		1.0%		1.000	0.993	0.997

7.1.2. Perceived barriers among participants

The most prevalent barriers reported by participants were: the desire to handle a problem on one's own (64-54%); thinking that treatment would not work (40-45%) and being unsure of where to go or who to see (48-44%). Structural barriers like transportation or scheduling problems were identified as more problematic in Boston than in Madrid or Barcelona (Boston vs. Madrid $p < 0.05$, Boston vs. Barcelona $p < 0.01$). A third of the participants from Boston acknowledged linguistic barriers, while fewer than 10% reported this barrier in Madrid or Barcelona. Significant site differences were found regarding fear of involuntary hospitalization (Boston vs. Madrid $p < 0.05$, Boston vs. Barcelona $p < 0.01$ respectively) and concerns about unfair treatment due to ethnic background (Boston vs. Madrid $p < 0.05$, Boston vs. Barcelona $p = 0.097$). Table 4 presents the prevalence of individual barriers at each study site.

Note: The analytical sample was limited to patients who had mental health service use in the past 12 months with at least one year residence in US or Spain. All barrier indicators are binary variables. Row frequencies and percent for positive outcome are reported by site. * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$.

Table 4: Frequencies of individual barrier by site (n=281)

Individual barrier:	Boston (n=111)		Madrid (n=67)		p-value (Madrid vs. Boston)	Barcelona (n=103)		p-value (Barcelona vs. Boston)
	N	%	N	%		N	%	
Attitudinal barriers								
Want to handle the problem on your own	62	56%	43	64%	0.315	66	64%	0.228
Think the treatment wouldn't work	45	40%	27	41%	0.982	46	45%	0.517
Received treatment before and it didn't work	35	32%	9	14%	0.009**	32	31%	0.921
Concerned about how much money it would cost	36	33%	21	32%	0.926	48	46%	0.049*
Concerned about what people would think if they found out you were in treatment	39	35%	27	40%	0.539	41	40%	0.441
Structural barriers								
Have problems with things like transportation or scheduling	57	52%	21	31%	0.011*	34	33%	0.005**
Unsure about where to go or who to see	49	44%	32	48%	0.597	46	45%	0.890
Scared of being put in a hospital against your will	54	49%	20	29%	0.014*	31	30%	0.006**
Concerned that you could be treated unfairly because of your race or ethnic background	38	34%	11	17%	0.016*	25	24%	0.097
Think oneself might not be able to communicate because of linguistic barriers	35	32%	0	0%	<0.001**	10	10%	<0.001***
Other obstacle you encountered	20	18%	15	22%	0.588	17	17%	0.764

7.1.3. Differences in reported barriers after adjustment for socio-demographic and clinical factors. Predictors of barriers

After adjusting for socio-demographics, clinical factors, degree of health literacy and cultural and social factors, reports of certain barriers still differed significantly across sites. Tables 5a and b show odds ratios where each column presenting separate models for these specific barriers. Interestingly, column 2 shows that participants from Madrid and Barcelona were two to three times more likely than their Boston counterparts to report dealing with mental health problems on their own. The next six columns demonstrate that participants from Boston had much higher odds of encountering the following two barriers: difficulties in transportation or scheduling, and linguistic barriers in communication. Linguistic barriers were significantly more common for participants with higher scores on inadequate health literacy and higher perceived discrimination scores.

Note: Only barriers that have significant site-differences are reported. 95% Confidence Intervals (CIs) of Odd Ratios (OR) are reported in brackets. * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$.

Table 5: Predictors of barriers, presented as Odds Ratios (n=281)

	Want to handle the problem on your own	Think the treatment wouldn't work	Have problems with things like transportation or scheduling that made it hard to get to	Unsure about where to go or who to see	Afraid of being put in a hospital against your will	Think oneself might not be able to communicate because of linguistic barriers
	Odds Ratio [95% Confidence Interval]					
<u>Socio-demographics</u>						
Site						
Boston	reference		reference		reference	
Madrid	3.09* [1.21,7.88]	1.29 [0.52,3.15]	0.33* [0.13,0.85]	1.54 [0.64,3.70]	0.58 [0.23,1.47]	0.76*** [0.67,0.87]
Barcelona	2.64* [1.15,6.06]	1.51 [0.67,3.41]	0.26** [0.11,0.62]	1.13 [0.51,2.51]	0.59 [0.26,1.35]	0.81*** [0.72,0.92]
Age	0.95** [0.92,0.98]	0.98 [0.96,1.01]	0.98 [0.95,1.01]	0.98 [0.96,1.01]	1.00 [0.97,1.03]	1.00 [1.00,1.01]
Female	2.02* [1.11,3.69]	1.27 [0.71,2.27]	1.28 [0.68,2.38]	1.34 [0.75,2.41]	1.52 [0.82,2.83]	1.01 [0.93,1.10]
White	0.90 [0.47,1.73]	0.70 [0.37,1.32]	0.79 [0.40,1.56]	0.59 [0.31,1.12]	0.94 [0.49,1.81]	0.93 [0.84,1.02]
<u>Economic Status</u>						
Live very well or comfortably	reference		reference		reference	
Live check-to-check	1.50 [0.77,2.92]	1.59 [0.83,3.06]	1.77 [0.88,3.54]	1.08 [0.57,2.05]	1.06 [0.53,2.09]	1.01 [0.91,1.11]
<u>Clinical Profile</u>						
Depression (PHQ-9)	0.98 [0.91,1.07]	1.08 [0.99,1.16]	1.00 [0.92,1.09]	1.07 [0.99,1.16]	1.00 [0.92,1.09]	1.01 [1.00,1.02]
Generalized anxiety (GAD-7)	1.03 [0.94,1.12]	0.95 [0.87,1.03]	1.02 [0.93,1.12]	1.00 [0.91,1.08]	1.00 [0.91,1.09]	1.00 [0.99,1.01]
PTSD (PCL-C)	1.01 [0.98,1.04]	1.02 [0.99,1.04]	1.02 [0.99,1.05]	1.02 [0.99,1.05]	1.03 [1.00,1.05]	1.00 [0.99,1.00]
Drug abuse (DAST)	1.05 [0.91,1.23]	1.09 [0.96,1.24]	1.01 [0.89,1.16]	1.02 [0.90,1.17]	1.11 [0.97,1.27]	0.99 [0.97,1.01]
Alcohol abuse (AUDIT)	1.01 [0.97,1.05]	1.01 [0.98,1.05]	1.01 [0.98,1.05]	1.01 [0.97,1.04]	1.02 [0.99,1.06]	1.00 [1.00,1.01]
Benzodiazepines	0.99 [0.93,1.06]	0.95 [0.90,1.01]	1.03 [0.97,1.10]	0.97 [0.92,1.03]	1.03 [0.97,1.10]	1.00 [0.99,1.01]
Trauma Exposure	1.57 [0.64,3.86]	1.39 [0.53,3.66]	1.04 [0.38,2.81]	1.48 [0.57,3.84]	1.17 [0.42,3.21]	0.91 [0.79,1.04]
Inadequate health literacy	1.02 [0.96,1.09]	0.99 [0.93,1.05]	1.01 [0.95,1.07]	1.05 [0.99,1.12]	1.05 [0.99,1.12]	1.01** [1.00,1.02]

Table 5b : Predictors of barriers, presented as OR (continuation) (n=281)						
	Want to handle the problem on your own	Think the treatment wouldn't work	Have problems with things like transportation or scheduling that made it hard to get to	Unsure about where to go or who to see	Afraid of being put in a hospital against your will	Think oneself might not be able to communicate because of linguistic barriers
	Odds Ratio [95% Confidence Interval]					
<u>Cultural, contextual and social factors</u>						
Citizenship	1.77 [0.97,3.24]	1.06 [0.59,1.89]	0.77 [0.42,1.43]	1.09 [0.61,1.95]	0.93 [0.50,1.72]	0.94 [0.86,1.03]
Sense of Belonging	0.80 [0.43,1.50]	0.85 [0.47,1.54]	0.81 [0.43,1.54]	1.02 [0.56,1.84]	1.14 [0.60,2.16]	0.98 [0.90,1.08]
Years in US/Spain	1.05** [1.02,1.09]	1.03 [0.99,1.06]	0.98 [0.94,1.01]	1.00 [0.97,1.03]	1.02 [0.99,1.06]	1.00 [0.99,1.00]
Number of Home Visits in the Past 12 Months	1.34 [0.88,2.05]	0.87 [0.59,1.28]	0.81 [0.54,1.23]	0.93 [0.63,1.38]	0.85 [0.56,1.28]	1.01 [0.96,1.07]
Discrimination Scale	1.02 [0.81,1.29]	0.99 [0.79,1.24]	1.25 [0.99,1.58]	0.91 [0.72,1.14]	0.95 [0.74,1.22]	1.05** [1.01,1.09]
Ethnic Identity Scale	1.15* [1.01,1.30]	0.99 [0.88,1.12]	1.14 [1.00,1.31]	1.05 [0.93,1.18]	1.02 [0.89,1.16]	0.99 [0.97,1.01]

7.1.5. Predictors for presenting multiple barriers

After controlling for confounding factors such as socio-demographics, clinical profile, and cultural and social factors we found no significant site differences in presence of multiple (more than 3) barriers. Full model (ie, Model 3) shows that females were more likely to experience multiple barriers as compared with males. Age had a negative correlation with number of barriers, with younger patients reporting more barriers to care than their older counterparts. In addition, those with higher symptoms of depression reported more barriers to care. Results are presented in Tables 6a and b.

Note: Number of barriers is created by summing up individual indicator for each barrier and is assigned 0 if the sum is missing. Standard errors are in parentheses. * p<0.05 ** p<0.01 *** p<0.001.

Table 6a: Predictors of number of barriers (presented as Standard Coefficient Reported from Poisson Regression) (n=281)

	Model (1) Site only	Model (2) Socio-demographics	Model (3) Model (2) + Clinical Profile + Cultural Factors + Community Characteristics
Socio-demographics			
Site			
Boston	Reference		
Madrid	-0.23** (0.08)	-0.20* (0.09)	-0.14 (0.11)
Barcelona	-0.10 (0.07)	-0.14 (0.08)	-0.11 (0.10)
Age		-0.01 (0.00)	-0.01* (0.00)
Female		0.21** (0.07)	0.27*** (0.07)
White		-0.10 (0.07)	-0.08 (0.08)
Economic Status			
Live very well or comfortably	Reference		
Live check-to- check or poor		0.17* (0.08)	0.14 (0.08)
Clinical profile			
Depression (PHQ-9)		0.02* (0.01)	0.02* (0.01)
Generalized Anxiety (GAD-7)		-0.00 (0.01)	-0.00 (0.01)
PTSD (PCL-C)		0.00 (0.00)	0.00 (0.00)
Drug Abuse (DAST)		0.01 (0.01)	0.00 (0.02)
Alcohol abuse (AUDIT)		0.01 (0.00)	0.00 (0.00)
Benzodiazepines		0.01 (0.01)	0.01 (0.01)
Trauma exposure		0.14 (0.13)	0.14 (0.13)
Inadequate health literacy		0.01* (0.01)	0.01 (0.01)
Cultural, Contextual and Social Factors			
Citizenship			0.01 (0.07)
Sense of belonging			-0.12 (0.07)
Years in US/Spain			0.00 (0.00)

Table 6b: Predictors of number of barriers (continuation)

	Model (1)	Model (2)	Model (3)
	Site only	Socio-demographics	Model (2) + Clinical Profile + Cultural Factors + Community Characteristics
Number of home 12 months			-0.00 (0.05)
Discrimination Scale			0.05 (0.03)
Ethnic Identity Scale			0.02 (0.01)
Family Conflict Scale			0.02 (0.02)
Recruitment Site			
Primary Care Clinics		Reference	
Mental Health Clinics			-0.02 (0.09)
Substance Abuse Clinics			0.18 (0.10)
HIV Clinics			0.01 (0.15)
Community Agencies			0.32 (0.43)

7.1.6. Predictors for service use

Tables 7a and b illustrate how service use in the past 12 months is associated with demographic, cultural, and social factors as well as with the reported barriers. One perceived barrier associated with less service use was concern about the cost of services. Paradoxically, uncertainty about where to go or who to see was significantly related to increased use of services. Significantly less service use was found among participants from Madrid and Barcelona relative to those from Boston after adjusting for multiple confounding factors and barriers in care. From the sensitivity analysis that excluded missing DAST data, we observed that the results remained unchanged except for the financial barrier, which became insignificant in Models 2 and 3.

Note: Standard errors are in parentheses. * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$.

Table 7a: Correlates of number of services use in the past 12 months (presented as Standard Coefficient Reported from Poisson Regression) (n=200)--- Excluding Missing Cases in DAST

	Model (1)	Model (2)	Model (3)
	Barriers only	(1) + Socio-demographics	(2)+ Clinical Profile + cultural Factors + community characteristics
Barriers			
Want to handle the problem on your own	0.02 (0.07)	-0.07 (0.08)	0.16 (0.09)
Think the treatment wouldn't work	0.39*** (0.09)	0.29** (0.09)	0.30** (0.09)
Received treatment before and it didn't work	-0.17* (0.08)	-0.29** (0.08)	-0.13 (0.08)
Concerned about how much money it would cost	-0.08 (0.08)	-0.09 (0.09)	-0.21 (0.11)
Concerned about what people would think if they found out you were in treatment	0.07 (0.06)	0.12 (0.07)	0.03 (0.08)
Have problems with transportation or scheduling that made it hard to get to	-0.04 (0.09)	-0.13 (0.10)	0.00 (0.10)
Unsure about where to go or who to see	0.32*** (0.08)	0.31*** (0.08)	0.23* (0.09)
Scared of being put in a hospital against your will	0.43*** (0.08)	0.30** (0.10)	0.11 (0.10)
Concerned that you could be treated unfairly because of your race or ethnic background	0.32*** (0.08)	0.20* (0.09)	0.07 (0.12)
Think oneself might not be able to communicate because of linguistic barriers	-0.18 (0.10)	-0.15 (0.13)	0.07 (0.12)
Other obstacle you encountered	0.03 (0.08)	0.03 (0.08)	0.16 (0.09)
Socio-demographics			
Site			
Boston	reference	reference	reference
Madrid		-0.07 (0.12)	-0.59*** (0.15)
Barcelona		-0.16 (0.11)	-0.50*** (0.14)
Age		-0.00 (0.00)	-0.01 (0.00)
Female		0.05 (0.11)	0.19 (0.10)
White		0.05 (0.08)	-0.04 (0.08)

Table 7b: Correlates of number of service use in the past 12 months (continuation)

	Model (1)	Model (2)	Model (3)
	Barriers Only	(1) + Socio-demographics	(2)+ Clinical Profile + Cultural Factors + Community Characteristics
Socio-demographics			
Economic status			
Live very well or comfortably		Reference	
Live check-to-check		0.17 (0.09)	0.14 (0.12)
Clinical profile			
Depression (PHQ-9)		0.03* (0.01)	0.06*** (0.01)
Generalized anxiety (GAD-7)		0.03*	0.03*
PTSD (PCL-C)		-0.00 (0.00)	-0.00 (0.00)
Drug abuse (DAST)		0.06*** (0.02)	0.03* (0.01)
Alcohol abuse (AUDIT)		0.01 (0.01)	0.01 (0.01)
Benzodiazepines		-0.02** (0.01)	-0.03*** (0.01)
Trauma exposure		0.21 (0.12)	0.21 (0.13)
Inadequate health literacy		-0.00 (0.01)	-0.03** (0.01)
Cultural, Contextual and Social Factors			
Citizenship			-0.14 (0.09)
Sense of belonging			0.30** (0.09)
Years in US/Spain			-0.01 (0.00)
Number of home visits in the past 12 months			-0.07 (0.13)
Discrimination scale			0.04 (0.04)
Ethnic identity scale			-0.01 (0.02)
Family conflict scale			-0.07* (0.03)
Recruitment Site			
Primary care clinics		Reference	
Mental health clinics			1.01*** (0.11)
Substance abuse clinics			1.20*** (0.12)
HIV clinics			1.12*** (0.17)
Community agencies			-0.54 (0.56)

7.2 Second study

7.2.1 Adherence to intervention

Out of 2284 of Latinos screened within the 3 sites, 341 met all the inclusion criteria and none of the exclusion criteria. After randomization, 172 participants were contacted and offered the IIDEA intervention. From these 172 intervention-arm participants, 39 never initiated treatment representing a 16.8%. Fifty-three individuals (30.8%) attended at least one session but dropped out of treatment before the sixth session. Finally, 52% of the participants attended six or more sessions. Table 8 summarizes individual characteristics of the three groups. According to the results, older Latinos present higher adherence than their younger counterparts ($p < 0.05$). Significant differences in adherence were found regarding education, where people with a higher education attended a higher number of sessions ($p < 0.001$). No significant differences in adherence were found by gender, ethnicity, economic status, or employment.

	N	Total intervention sample (n=172) mean or %	No treatment (n=39) mean or %	Received 1-5 treatment sessions (n=44) mean or %	Received 6 or more sessions (n=89) mean or %	p-value
Site						
Boston	44	25,6%	20,5%	25,0%	28,1%	0.204
Madrid	41	23,8%	12,8%	29,6%	25,9%	
Barcelona	87	50,6%	66,7%	45,5%	46,1%	
Age Category						
18-34	100	58,1%	61,5%	72,7%	49,4%	0.040
35-49	48	27,9%	33,3%	15,9%	31,5%	
50+	24	14,0%	5,1%	11,4%	19,1%	
Gender						
Male	78	45,3%	56,4%	45,5%	40,4%	0.248
Female	94	54,7%	43,6%	54,5%	59,6%	
Ethnicity						
White	29	16,9%	20,5%	11,4%	18,0%	0.254
Black	9	5,2%	0,0%	13,6%	3,4%	
Indigenous/Native American	9	5,2%	5,1%	4,5%	5,6%	
Hispanic/Latino/Caribbean	21	12,2%	10,3%	11,4%	13,5%	
Mixed	103	59,9%	64,1%	59,1%	58,4%	
Education level						
Less than High School	68	39,5%	43,6%	59,1%	28,1%	0.002
HS Diploma, GED, Vocational School, or More	104	60,5%	56,4%	40,9%	71,9%	
Economic Status						
Live check-to-check or poor	36	20,9%	25,6%	22,7%	18,0%	0,944
Live very well or comfortably	13	7,6%	10,3%	6,8%	6,7%	
Employment Status						
Unemployed	80	46,5%	41,0%	61,4%	41,6%	0,073
Employed	92	53,5%	59,0%	38,6%	58,4%	

7.2.2. Predictors of adherence by clinical factors

Regarding baseline clinical profile, Table 9 shows that participants with a higher score in the Hopkins symptom checklist presented a significantly higher retention ($p < 0.01$), as did individuals with a benzodiazepine abuse ($p < 0.05$). No predictive effect was found regarding other clinical factors such as depression, PTSD symptoms, trauma exposure, drug abuse or alcohol abuse. Finally, a higher adherence tendency was observed among participants who reported higher levels of anxiety although it was not statistically significant.

	N	Total Intervention Sample (n=172)	No treatment (n=39)	Received 1-5 sessions (n=44)	Received 6 or more sessions (n=89)	p-value
Depression						
(PHQ-9) (0-27)	172	10,88	9,97	10,43	11,49	0.297
Generalized anxiety						
(GAD-7)(0-21)	172	8,53	7,08	8,23	9,31	0.053
PTSD (PCL) (0-80)	172	27,19	22,46	27,61	29,06	0.123
Drug abuse (DAST) (0-10)	170	1,27	1,53	1,60	1,00	0.224
Alcohol abuse (AUDIT)(0-12)	172	5,20	5,28	5,45	5,04	0.815
Benzodiazepines (0-27)	171	2,13	1,72	0,73	3,02	0.011
ASI alcohol (0-1)	172	0,20	0,15	0,19	0,23	0.120
ASI drug (0-1)	172	0,04	0,04	0,05	0,04	0.384
Hopkins Symptom Checklist (HSCL)(0-80)	140	31,02	25,68	28,24	34,77	0.009
Mindfulness (1-6)	172	3,75	3,91	3,73	3,70	0.607
Smoking Fagestorm (0-10)	143	0,83	0,88	1,14	0,64	0.400
Trauma Exposure						
No	8	4,7%	10,3%	0,0%	4,5%	0.086
Yes	164	95,3%	89,7%	100,0%	95,5%	

7.2.3. Predictors regarding social and cultural factors

Table 10 shows results regarding cultural and social factors. Retention to intervention was not related to any of the cultural or social factors assessed and reported barriers to intervention at baseline.

Table 10: Social, cultural factors reported at baseline, association with adherence to treatment						
	N	Total Intervention Sample (n=172)	No treatment (n=39)	Received 1-5 sessions (n=44)	Received 6 or More sessions (n=89)	P-value
Citizenship						
Noncitizen	78	45,3%	46,2%	36,4%	49,4%	0.277
Citizen	91	52,9%	53,8%	63,6%	47,2%	
Sense of belonging						
No	70	40,7%	35,9%	38,6%	43,8%	0.631
Yes	101	58,7%	64,1%	61,4%	55,1%	
Health literacy scale	170	14,44	14,33	14,36	14,53	0.922
Discrimination Scale	171	9,21	7,90	9,34	9,73	0.521
Ethnic identity Scale	171	9,44	9,49	9,61	9,34	0.728
Family conflict Scale	171	2,25	1,87	2,48	2,30	0.374
Acculturation Stress scale	170	4,96	4,44	4,33	5,52	0.178
Years in US/Spain	154	10,03	9,97	10,26	9,94	0.981

7.2.4. Predictors by number of reported barriers at baseline

Regarding reported barriers to retention assessed at baseline, we found that Latinos who reported at least one barrier presented a higher retention to the program compared to those participants who did not report any barrier ($p < 0.001$). Moreover, participants that reported more than three barriers showed greater completion of the program compared to those who reported less than three barriers, a difference that was also significant ($p = 0.002$).

	N	Total intervention Sample (n=172)	No treatment (n=39)	Received 1-5 sessions (n=44)	Received 6 or more sessions (n=89)	P-value
Reported Barriers						
<3 reported	69	40,1%	64,1%	34,1%	32,6%	0.002
>=3 reported	103	59,9%	35,9%	65,9%	67,4%	
Any Reported Barriers						
No barriers	19	11,0%	28,2%	4,5%	6,7%	<0.001
Yes with barriers	153	89,0%	71,8%	95,5%	93,3%	

7.2.5. Barriers association with adherence to treatment

Table 12 shows the results of association of barriers to retention to treatment. After analyzing the main reported barriers and other variables using backwards selection, and adjusting for other confounding predictors, “wanting to handle the problem on one’s own” was a reported barrier at baseline that was associated with staying in the program for only 1 to 5 sessions (OR=3.94, CI= [1.20,12.94]). However, this barrier was not significantly related for the group of participants who completed the treatment. The barrier “thinking that the previous treatment did not work” functions as a predictor for completion of the program (OR=5.25, CI= [1.62, 17.04]). In the 2nd Model, where the barrier “wanting to handle the problem on one’s own” was excluded from the analysis to avoid possible collinearity between other barriers, significance persisted for the barrier “thinking that the previous treatment did not work”

Regarding other selected variables, we found that being employed was also a predictor for assisting at 1 to 5 sessions of the program as compared to the group that never initiated treatment. Education and perceived discrimination were found to be predictors for completing the IIDEA program (OR 3.38 and OR 1.09 respectively).

Note: reference outcome is no treatment initiated. Presented with Odds Ratio. Exponentiated coefficients; ci in brackets. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 12: Predictors of adherence to intervention

	Model 1	Model 2 excluding first barrier
Received 1-5 Treatment Sessions		
Want to handle the problem on your own	3.94* [1.20,12.94]	-
Think the previous treatment wouldn't work	2,98 [0.84,10.52]	3,28 [0.96,11.25]
HS Diploma, GED, Vocational School, or More	0,77 [0.24,2.43]	0,84 [0.28,2.54]
Benzodiazepines (0-27)	1,02 [0.84,1.24]	not significant at p=0.25
Employed	0,31 [0.09,1.00]	0.30* [0.10,0.95]
Discrimination	1,06 [0.97,1.15]	1,06 [0.97,1.15]
Received 6 and More Sessions of Treatment		
Want to handle the problem on your own	2,48 [0.89,6.90]	-
Think the previous treatment wouldn't work	5.25** [1.62,17.04]	5.89** [1.89,18.43]
HS Diploma, GED, Vocational School, or More	2,85 [0.94,8.64]	3.38* [1.14,9.98]
Benzodiazepines (0-27)	1,13 [0.96,1.32]	not significant at p=0.25
Employed	1,24 [0.43,3.56]	1,29 [0.47,3.56]
Discrimination	1.09* [1.00,1.17]	1.09* [1.00,1.18]
N	127	127
pseudo R2	0,161	0,161

7.3. Third article: Review article

The main conclusion stated in the review is that cross-cultural clinical encounters bring challenges for clinicians and patients, based in the following:

- Clinicians are asked to make decisions quickly, which can lead to attributional errors and unconfirmed assumptions about patients
- To meet the needs of patients from diverse ethnic and social backgrounds it is necessary to provide culturally adapted evidence-based practices in patient's primary language and focus on patient's goals for treatment.
- It is practically impossible for clinicians to be up-to-date on evidence-based practices, receive training to competently manage cross-cultural encounters and have the time necessary to practice effective and collaborative behavioral healthcare with diverse patients.
- Linguistic barriers impede opportunities to obtain a shared meaning of what the problem is or what the solutions are.

A series of recommendations are suggested:

- Cultural brokers and specialized supervisors can help clinicians navigate cross-cultural encounters when no specific treatment adaptations are available. They might help bridge cultural and social gaps between patients and clinicians.
- Empowering existing community agencies with training in mental health screening and treatments reduces help-seeking barriers.
- When cultural match between clinicians and patients are not possible, clinical supervision is a good option. It should address power differentials in their therapeutic relationship. Clinical session recordings can be reviewed with supervisors or cultural brokers to reflect on who initiates topics, how much the patient engages verbally, and how to encourage patients to become activated. We emphasize the importance of the cultural formulation of how patients understand their problems and what matters most to them as potent factors in treatment.
- Shared decision making, in which both patients and clinicians hold expertise and work together to make a decision, may be a particularly helpful tool, because patients become co-producers of the treatment session and more engage in the therapy methods.
- To preserve active listening, respect, and humility toward patients, clinicians may need coaching to provide patients opportunities to become experts and help them find viable options for illness management. This may mean letting go of verbal

and professional dominance in parts of the clinical encounter, explicitly checking assumptions that are being made, and being more curious and open in exploring the solutions patients offer to their problems.

8. DISCUSSION

This research thesis aimed to comprehensively examine perceived barriers to behavioral healthcare and the role of these barriers for retention to care. Disparities in behavioral health treatment, cultural mistrust and barriers to care have been deeply analyzed for providing some clues for improving care among immigrant population, especially in Latino community.

From the results showed, out of the main identified barriers “handling the problem on one’s own” or self-reliance, doubts about the efficacy of treatment, and uncertainty about “where to go” or “who to see” for treatment, are reported most frequently at all 3 sites. We have also learnt that specific individual characteristics such as being younger or a woman, are associated with presenting one barrier or another and that contextual differences such as the study site also demonstrate differences in the reported barriers and the use of behavioral health services. Reported barriers are also good predictors for behavioral health services use.

Studying the association between reported barriers, social factors and adherence to a culturally sensitive treatment has led to an interesting finding: higher number of barriers at the beginning of an intervention is related to higher adherence to treatment intervention when this is a patient-centered one. We also viewed that mistrust on behavioral services and individual characteristics such perceived discrimination are associated with higher retention giving us more ideas on how to approach treatment among these subpopulations.

8.1. Most reported barriers.

“Desire to handle the problem on one’s own was” reported more frequently by younger, female participants and those who migrated recently and had a high ethnic identity. These associations are consistent with other studies that suggest higher levels of ethnic identity, Spanish-language usage, preference for social interactions with other Latinos, and recent migration predict lower access and service utilization [52, 118, 164-166]. It is known by other studies that Latino young adults avoid care, search for informal care by going to family members, or use home remedies and traditional healers [167-169]. Difference reasons for young Latinos not accessing to behavioral health services have been pointed: recent immigration with all its associated components (non-legal status), higher ethnic identity that avoids embracing new healthcare systems, or precarious jobs and childcare obligations are some of them [60].

Outreach campaigns that emphasize when professional behavioral services are warranted could facilitate earlier entrance into care among immigrant populations as a

public health intervention. Partnership between clinics and community based organizations could also be a successful initiative following the positive results in access and retention to treatment among the integrative healthcare strategies [170, 171]. However, more research is needed to understand the types of public health messages that might encourage people to see the benefits and perils of self-reliance when behavioral health problems are exacerbated.

Lack of trust in treatment and in the behavioral health system along with experiences of discrimination from health care providers are additional contributing factors that lower access and retention in treatment among Latinos [169, 172]. Implementing screening interventions by trained community health workers or social agents in community settings could reduce mistrust in treatment and accelerate the public health goal of early detection and engagement in care.

Uncertainty about where to go or who to see for mental health service was a structural barrier reported by many participants (44-48% and 45%) at the 3 sites, underscoring the importance of dissemination of service options to primary care providers and community agencies that serve immigrant populations, with walk-in options to access care and the necessity to improve health provider-patient communication.

The finding that women are more likely to report more barriers to care than their male counterparts suggests the importance of tailoring services to consider the multiple roles women have that reduce their opportunities for self-care [173]. There is an increasing body of research that states that Latino women present more difficulties in entering and retaining in care compared to males [174]. Lack of insurance coverage, domestic obligations, and precarious legal status have been associated with low rates of access in general care and mental health services in United States [175, 176]. In Spain, Cayuela and colleagues recently found that worker immigrant women in Spain reported lower self-perceived mental health compared to their natives counterparts [51] and occupational social class was the largest contributing factor in this association between health and migrant status. Immigrant women suffer from additional disadvantage based on gender, social class and immigrant status [177]. They may disproportionately suffer the double burden of having to carry out both paid and not-paid domestic work. In contrast, In 2010, of all immigrant working women, 34,9% were employed in domestic services, and of the total native working female population, only 3.4% were working in this sector [178]. For this reason, childcare extended work-schedules are commonly attributed to women who makes more difficult attending to health care appointments. Other settings, like Latino common workplaces, should be tested for outreach. Culturally sensitive programs or

patient navigators that educate patients on navigating the health system could also improve access to and retention in care. Once patients begin receiving services, providers should assess perceived barriers and focus on practical solutions like phone delivered therapy or weekends appointments. Motivational and psycho-educational interviewing techniques could be used to overcome perceived barriers while improving treatment adherence [179].

8.2 Differences by site.

When we observe our results focusing on differences by site, we acknowledge that Latinos from Spain, who were more likely to be recent immigrants, reported significantly higher rates of “wanting to handle problems on their own” than those in Boston. This barrier also reflects the double stigma concept reported in the literature regarding immigrant populations [68, 69]. Moreover, recent immigrants could be less targeted by outreach and health awareness campaigns, particularly in Spain, where it is assumed that Latinos do not face linguistic or insurance barriers. This overlooks cultural differences that may contribute to barriers to treatment. Health providers in Spain should pay specific attention to attitudinal factors such as self-reliance when treating Latino patients. Gather essential information related to the migration process and social/family situation during the firsts appointments could help to reduce these attitudinal barriers. Boston participants, who reported more difficulties accessing transportation to attend and schedule their appointments, may confront less affordable public transportation systems than in Madrid and Barcelona [180, 181]. Moreover, higher rates of employment in Boston may mean that a greater number of participants present difficulty leaving work to attend appointments. Research suggests that structural factors like financial costs, time off from work, and transportation are significant reasons that Latinos leave therapy [182]. All this suggests that alternative services like telemedicine or phone therapy could help with these barriers.

We observed a stark difference between sites related to “fear of being involuntary hospitalized”. This barrier was reported by almost half of the participants in Boston, which was significantly higher than in both Spanish counterparts (30%). It is known that coercive treatment experiences have been proven to deter voluntary help seeking [183]. We can assume that these differences may be due to the link between mental health and the criminal justice system in United States, where there is an important interplay between criminal justice and mental health [184-186]. Alternatives to incarceration are urgently needed to mitigate this barrier [187] and we think that this finding should be widely disseminated among the research community for its implications in suggesting diverse research hypothesis.

Although Latinos in Boston more commonly reported linguistic barriers, a small number of Latinos in Barcelona reported linguistic barriers too. This is probably due to the use of Catalan by some providers in Catalonia. We should collect more information to elucidate this barrier and try to understand the implications and effects of this existing barrier though it was only reported by the 10% of the Barcelona sample. However, in United States, lack of linguistic resources in health care settings is a major barrier [188]. Inability to communicate mental health concerns can interfere with the diagnostic process, impair patient education, decrease compliance and follow-up, and result in patient dissatisfaction and poorer treatment outcomes [189-191]. In fact, patient-provider language match may be positively related to patients' retention in treatment, longer length of treatment [192], and reduced waiting time for entering treatment [193]. Perception or anticipation of a linguistic barrier during the first contact with health professionals could discourage individuals from seeking care [194] so that should be assessed before entering to services or during the first session.

8.3 Correlates of services use

Latinos from both Spanish sites (Madrid and Barcelona) showed significant lower odds of service use during the last 12 months compared to their counterparts from Boston even after adjusting for multiple confounding factors such as sociodemographic characteristics and other community factors. This result surprised us as we thought that Spanish universal health care and the existence of more readily available transportation systems would facilitate use of behavioral services for who needed. However, the Latino population in Spain has a more recent immigration history with a high prevalence of irregular residential status and less citizenship, which could contribute to lower inclination to seek services compared with Boston, where 72% of participants had achieved citizen status. Low health literacy was also found to be significantly related to lower service utilization. These results highlight the importance of increasing mental health psychoeducation among Latinos to address concerns about treatment and stigma and emphasize how negative consequences could be avoided by early entrance into care. The number of visits for behavioral health services over a 12-month period was associated with 2 perceived structural barriers: financial concerns about services and lack of knowledge about where to go or who to see to get services, which was, interestingly, associated with a higher use of services. We attributed this results to the fact that people experimenting these barriers end to entry in treatment later than they need to leading to a delay treatment that probably implies more severity of clinical symptoms, longer treatment and higher need of services [195].

8.4. Severity of symptoms directly related with adherence to intervention program

As we hypothesized, participants who reported a higher severity of mental health symptoms (represented by a higher score on the HSCL checklist) exhibited higher adherence to the IIDEA sessions (higher number of sessions) compared to those with less symptom severity. Consistent with the literature, the severity of symptoms and perception of severity are important factors to predict compliance and adherence to treatment [81]. Severe symptomatology at baseline functions as a good predictor of treatment completion and should be considered when developing clinical trials with psychiatric patients. In their examination of pre-treatment variables as potential predictors of adherence in cognitive therapy, Sasso and colleagues found that mental health symptoms and mental health history at baseline were significantly related with symptoms improvement after cognitive therapy [196-198]. Our findings did not show any relationship between severity of substance abuse symptoms and adherence to treatment. This result could be related to the low severity of substance abuse symptoms found in our study population. The literature shows that continued service use among participants with co-occurring disorders is less likely when the severity of substance abuse symptoms is low [199].

8.5. Contextual and demographic factors

In our study, older participants (ages 50 and above), showed significantly higher retention than their younger counterparts. Consistent with the literature, older individuals are more likely to remain in treatment compared to their younger counterparts [95, 200, 201]. This result could be linked to a wider availability for attending therapy for older participants that have less family obligations which represent a common burden for younger populations [62, 200]. However, being employed was not found to be related with adherence to treatment maybe because the flexibility of the intervention offered sessions by phone or during weekends. Higher education was found to be associated with completion of services, responding to better knowledge and understanding of the problem and the need to attend care [202, 203]. Our results did not show differences by gender. Although women - especially women from immigrant subgroups - seek less treatment and report a higher number of barriers to accessing behavioral care [204, 205], research has shown that once women with co-occurring disorders finally enter treatment, they are more likely to stay in treatment compared to men [92, 97] and to present better outcomes [205, 206]. Nevertheless, our results are not consistent with this literature. Possible explanations for these differences could be the flexibility of the treatment approach and the greater attention to coordinating appointments around the schedules of participants.

8.6. Reported barriers at baseline predict adherence to treatment

Contrary to what we had expected, participants who reported a higher number of barriers showed greater adherence to the IIDEA intervention. Specifically, individuals who reported experiencing the most prevalent barrier (“willing to handle the problem on one’s own”) were more likely to attend 1-5 treatment sessions compared to those who never initiated treatment. Similarly, participants who reported mistrust in treatment (“previous treatment would not work”) were more likely to complete the program compared to the group that never initiated the intervention. Our results show that patients who most adhered to the IIDEA intervention reported higher levels of discrimination and mistrust in previous treatment programs, which could represent the greatest obstacle to the retention and adherence of mental health care. Mistrust in treatment and in the behavioral health system as well as experiences of discrimination from health care providers have been found to contribute to lower rates of retention in treatment among Latinos [131]. Even if individuals view their symptoms as warranting attention, they are unlikely to seek treatment if they do not believe they will benefit from professional services. Thus, increasing patients’ perceived benefits for treatment is a necessary approach to increasing adherence [81]. Our results suggest several possible explanations for this result. First, we found culturally and linguistically matching patients and providers was essential to overcoming cultural mistrust. In a meta-analysis of cultural matching between therapists and patients Cabral and Smith reported that patients showed a relatively strong preference for therapists of their own ethnicity and a moderate tendency to perceive therapists of their own ethnicity positively [207]; however, there was nearly no effect of ethnic matching on treatment outcomes, indicating that ethnic matching may be beneficial in engaging patients in therapy, but has little impact on the effects of treatment. An observational study of Latino patients that analyzed communication between ethnic-matched vs. non-matched patient-provider dyads suggested that communication patterns may explain the positive role of provider-patient concordance in the continuation of care [208]. Research has also shown that linguistic matching impacts therapeutic alliance and improves quality of care [209]. These findings support the IIDEA program’s model of ethnic and linguistic matching and could explain why the intervention yielded greater adherence for patients with higher levels of mistrust. Second, cultural tailoring of psychotherapy interventions also proved to be another method of overcoming mistrust among immigrant populations. Research shows that cultural adaptation improves treatment engagement and completion [108, 210, 211], specifically when the adaptation utilizes metaphors and symbols that match the patient’s worldview, adapts the clients’ symptoms attributions to the cause, course and treatment of psychiatric disease, and implicitly addresses cultural factors [212]. Along with incorporating these strategies, the IIDEA program benefitted from an intensive approach

to patient engagement, such as recruiting participants and providing the intervention in community-based health clinics and agencies, allowing flexibility in the scheduling of treatment sessions (including nights and weekends), facilitating the treatment in patients' preferred language, and using extensive follow-up procedures (e.g., calling before each session, providing the possibility of phone sessions, offering home visits when necessary). These factors could explain why participants perceiving higher discrimination and mistrust in services were retained in the intervention.

Supported by the recommendations developed in the review, these study results contribute to reduce the knowledge gap regarding persistent disparities in behavioral health. It is critical to acknowledge that changes cannot be expected to come from the patients, but from the systems of care themselves. Systems and health providers should be responsible for making evidence-based treatments accessible and acceptable to diverse patients. It is necessary to examine engagement to services and explore flexibility and adaptability on how (i.e. phone sessions, weekend sessions, home visits) and where care is offered (i.e. community settings). Finally, we must acknowledge the importance of working with patient's perceived attitudinal and structural barriers in the first encounter, because it provides useful information to improve engagement while repeated outreach is necessary to improve retention rates.

9. STRENGTHS AND LIMITATIONS

To our knowledge, the project is one of the first studies that comprehensively analyze the importance of perceived barriers in care among Latino immigrants in two different host countries.

However, some important limitations need to be pointed out: the first study included Latinos who were already accessing health services (recruited mostly in primary care clinics and who had received some behavioral health intervention recently) with other barriers being more prevalent among those without of any contact with the health care system. Although our analysis controls for many factors that differed between sites, the Latino populations across the three sites vary in terms of country of origin and representation of Latino subgroups. There could be underlying differences in attitudes about seeking and retaining in mental health care between subgroups that might contribute to the observed differences between sites. Third, it should be noted that by the time of the publications, the International Latino Research Partnership project was still an ongoing project and we lack some crucial information about efficacy of the intervention and how adherence is related to it. Finally, some individuals with higher number of barriers in care may not be aware of them. Thus, they would report lower number of barriers and would presumably drop out treatment early for not being conscious of the potential benefits of receiving it. Collected data did not allow to controlling this circumstance.

Notwithstanding these limitations, the project offers fruitful information about the importance of exploring barriers to treatment and tailoring outreach and treatment interventions to specific ethnic groups.

10. SUMMARY CONCLUSIONS

1. Barriers to behavioral health services among Latino immigrants are common and worthy to be studied. “Willing to handle the problem in one’s own” is the most prevalent barrier along with mistrust with the system and structural barriers such as difficulties with language and transportation and scheduling. Although there are no drastic differences regarding sites, Latinos from Boston site demonstrated more structural barriers and Spanish sites more attitudinal ones.
2. Among different social factors, perceived discrimination is the only one that is related to perceiving the communication barrier (thinking that communication with the provider will be difficult) and to a higher retention to treatment when it is culturally centered and sensible to the needs of the patient. Other social and cultural factors such as ethnic identity, family conflicts or acculturation are not found to be related to retention in care among Latino immigrant population.
3. Among clinical factors, severity of symptoms is a good predictor for retention to care. Depression, anxiety and dependence to benzodiazepines are related to a higher use of services. Depression is also related with presenting a higher number of barriers in care.
4. Perceived barriers to behavioral health services play an important role in predicting adherence to treatment. At least when this is offered in an extensive and cultural-centered way. People who present a higher number of barriers may retain to a cultural-centered intervention.
5. “Wanting to handle the problem in one’s own” and “Mistrust with behavioral health treatment” are two attitudinal barriers that predict treatment adherence and treatment completion respectively when an intensive, evidence-based and cultural-centered intervention is offered to Latino immigrants in United States and Spain.
6. Some recommendations are done after analyzing our results: Outreach campaigns focused in community settings and using peer navigators or community health workers are one of the possible strategies to increase access to behavioral health care among Latinos. We also recommend assessing perceived discrimination and barriers before starting an intervention as it can inform the clinician about how to better approach the intervention and get a higher

adherence while overcoming present barriers. Finally, we point out the importance on tailoring interventions to specific ethnic groups.

Barriers to and Correlates of Retention in Behavioral Health Treatment Among Latinos in 2 Different Host Countries: The United States and Spain

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Context: Latino immigrants constitute a large portion of the Spanish and US immigrant populations, yet a dearth of research exists regarding barriers to retention in behavioral health care. **Objectives:** To identify and compare perceived barriers related to behavioral health care among first- and second-generation Latinos in Boston, Madrid, and Barcelona, and evaluate whether the frequency of behavioral health care use in the last year was related to these barriers. **Design, Setting, and Participants:** Data were obtained from the International Latino Research Partnership project. First- or second-generation self-identified Latino immigrants aged 18 years and more who resided more than 1 year in the host country were recruited from community agencies and primary care, mental health, substance abuse, and HIV clinics. **Main Outcome Measures:** Eleven barriers were assessed and compared across sites. The relationship between barriers and behavioral services visits within the last year was evaluated, adjusting for sociodemographics, clinical measures, degree of health literacy, cultural, and social factors. **Results:** Wanting to handle the problem on one's own, thinking that treatment would not work, and being unsure of where to go or who to see were the most frequently reported barriers for Latino immigrants. Previous treatment failure, difficulties in transportation or scheduling, and linguistic barriers were more likely to be reported in Boston; trying to deal with mental health problems on one's own was more commonly reported in Barcelona and Madrid. Two barriers associated with the number

of visits were concerns about the cost of services and uncertainty about where to go or who to see. **Conclusions:** After adjusting for sociodemographics, clinical measures, degree of health literacy, cultural, and social factors, barriers still differed significantly across sites. Efforts to improve behavioral health services must be tailored to immigrants' context, with attention to changing attitudes of self-reliance and outreach to improve access to and retention in care.

KEY WORDS: barriers, behavioral health, cross-national, ethnic, immigrants, international, Latinos

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Work supported by NIDA Grant 5R01DA034952-02; NIMH supplement 3R01MH100155-01S1.

Supplemental digital content is available for this article. Direct URL citations appear in the printed text and are provided in the HTML and PDF versions of this article on the journal's Web site (<http://www.JPHMP.com>).

The authors declare no conflicts of interest.

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DOI: 10.1097/PHH.0000000000000391

J Public Health Management Practice, 2016, 00(00), 1–9
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● Introduction

Latinos constitute the largest, fastest-growing immigrant population in the United States¹ and represent around 20% of the total immigrant population in Spain.^{2,3} The growth of Latino populations, defined as first- and second-generation self-identified Latinos in both countries, poses challenges for public health systems, from accessibility of behavioral health services^{4,5} to low quality and lack of continuity of care.⁶ Although disparities in behavioral health care among Latinos have been identified in the United States,^{7,8} there is a paucity of research in both countries that identifies the barriers related to retention in care for Latinos and whether these barriers vary depending on the host country.⁹ Consequently, progress has been limited,^{10,11} with insufficient early detection and intervention and inadequate access to treatment, resulting in a public health problem.¹²

Perceived barriers to behavioral health treatment can be identified at the individual/attitudinal and structural/systemic levels.¹³⁻¹⁶ Attitudinal barriers among Latinos include cultural mistrust of the mental health system,^{17,18} desire to handle the problem on one's own,¹⁹ and perceived discrimination by health care providers.^{20,21} Structural barriers among Latinos include lack of ethnic/racial match between patient and provider,^{20,22} lack of health insurance, low socioeconomic status,^{13,23} low English proficiency,^{24,25} lack of transportation, difficulties in scheduling appointments, lack of child care, inability to take time off from work, and limited educational attainment.^{20,23,26-28} Culturally associated stigma or the so-called double stigma is also highly associated with reported barriers to retention to mental health care among Latinos and other immigrant groups.^{29,30} Factors related to acculturation like sense of belonging within the context one resides, family support, ethnic identity, acculturative stress, and perceived discrimination have also been identified as potential barriers to care.^{31,32} The ability to identify barriers to care provision can help ensure early identification of co-occurring substance use/smoking and mental health problems and detection of HIV risk in primary care clinics, thus advancing the public health goal of detection and treatment.

Rationale for the study

The aims of this study were (1) to identify and compare perceived barriers to retention in behavioral health care among Latinos in Boston, Madrid, and Barcelona who had received or were receiving treatment; (2) to identify clinical, cultural, and social factors as correlates to these barriers; and (3) to understand whether the frequency

of behavioral health care use in the last year was related to the reported barriers to care.

Site differences in health care

The Latino population in the United States is diverse, with large numbers of Puerto Ricans, Dominicans, Brazilians, Salvadorans, and Mexicans, among others. Since the Patient Protection and Affordable Care Act of 2010, health insurance coverage has increased for legal residents through partially and fully subsidized insurance plans. However, undocumented immigrants and persons with less than 5 years of legal residence cannot receive federal insurance subsidies or enroll in Medicaid (a social health care program for low-income individuals). The main entrance for Latino immigrants to the health care system is through community-based clinics where patients can choose a primary care doctor that accepts public insurance and either treats or refers them to mental health and substance abuse care. Although Massachusetts has the highest insurance coverage in the nation,³³ barriers in the process of care seem to remain.

In Spain, Latino immigrants come mostly from Ecuador, Colombia, and Bolivia.³⁴ Although Spain has universal coverage for primary care, specialty care, and prescription drugs,³⁵ a law denying health coverage to undocumented immigrants was instituted in 2012. However, the law has not been fully applied and effects of its implementation are still unknown. Similar to Massachusetts, the main entrance to the health care system is through primary care centers, where each person has an assigned primary care provider. In Barcelona, primary care providers are assigned according to the client's address. Each primary care center has an assigned general hospital and behavioral health center. In Madrid, any person can choose their primary care provider and specialty hospital of reference regardless of their home address. In both Barcelona and Madrid, primary care providers are responsible for referring patients to mental health care centers. Specialty providers in mental health centers classify referrals and provide appointments according to severity, whereas substance abuse treatment is open to all registered persons in the municipality.

● Methods

Study setting and sample

Data were drawn from survey interviews for the International Latino Research Partnership project, a multisite study funded by the National Institute on Drug Abuse that seeks to improve Latino behavioral health.

Participants ($n = 567$) were recruited from primary care, mental health, substance abuse, and HIV clinics, as well as from community agencies. Clinics in both countries were associated with large safety-net health care systems. Study activities were conducted between July 2013 and August 2014. The study was approved by the review boards of the participating institutions. All participants provided written, informed consent before participating in the study (see supplemental digital content Table 1s available at <http://links.lww.com/JPHMP/A203> for patients' demographics). For our analyses, eligible participants met inclusion criteria if they were 18 years of age or more and self-identified as first- or second-generation Latinos (from any Spanish-speaking Caribbean, Central, or South American country) who had stayed more than 1 year in the host country and that in the last year had received behavioral health services in the host country by either getting a prescription, being hospitalized for behavioral health problems, or having received psychotherapy ($n = 281$).

Procedures

Prospective participants were contacted directly by research team members in clinic waiting rooms or were referred to the International Latino Research Partnership research team by agency staff and then contacted over the phone. Interviews, administered by trained interviewers, were conducted in Spanish ($n = 276$) or English ($n = 5$) depending on participant language preference and were audio recorded, lasting around 1 hour (mean = 68.2 minutes; standard deviation = 21.6 minutes). Participants were compensated with \$40/€30 gift cards.

Measures

Barriers to care

To assess perceived barriers in behavioral health care, we asked participants about 11 potential barriers they might have experienced tied to behavioral health services. Barriers were divided into attitudinal (related to the individual's feelings and values) and structural (related to the health care system). Attitudinal barriers included wanting to handle a problem on one's own, thinking treatment would not work, concerns about stigmatization, fear of involuntary hospitalization, and concerns about poor treatment because of one's ethnic/racial background. Structural barriers included not knowing where to go or with whom to talk about problems, fear of not knowing how to communicate problems because of language barriers, previous negative experiences with treatment, treatment cost, and problems with transportation and

scheduling times. Participants answered "yes" or "no" to indicate whether they had experienced each of the barriers and had the opportunity to add additional barriers they faced not described in the assessment. To assess behavioral service utilization, we constructed a continuous variable of number of days of hospital stays for mental health or substance abuse problems and number of visits for psychological counseling or psychiatry lasting 30 minutes or more in the last year. Detailed information about the sources of the measures used, including measures on social and cultural factors, use of services and clinical factors, health literacy, and demographic questions can be found in Supplement Digital Content Appendix, available at <http://links.lww.com/JPHMP/A202>.³⁶⁻⁴⁷

Statistical analysis

We first investigated the distributions of sociodemographics, clinical measures, cultural, and social factors at each site. We reported proportions for categorical variables and mean and standard deviation for the continuous variables. We relied on regressions to detect any significant site differences in barriers to care. Model coefficients represented the pairwise comparison to the referent Boston site and comparisons between Spanish sites. The P values from the regression indicated whether there were significant differences relative to the referent site for each barrier.

To address missing data in the variables of interest (<6% missing on barrier measures; <3% in clinical measures*, cultural/social factors, and socioeconomic status variables), we implemented multiple imputation methods using the *mi* procedure in Stata.⁴⁸ This technique creates 20 complete datasets, imputes missing values using a chained equations approach, analyzes each dataset, and uses standard rules to combine estimates and adjust standard errors for uncertainty because of imputation. To address the missing data in Drug Abuse Screening Test (DAST) component, we performed a sensitivity analysis, excluding missing DAST data from the model analysis.

We adopted logistic regressions to further detect site differences for individual barriers after controlling for other confounding predictors. We used Poisson regressions to assess whether the number of barriers differed for individuals at different sites. Multiple model specifications were adopted for consistent

*The only exception is DAST, which has 29% missing data in the analytical sample. We imputed DAST scores for a subset of patients who did not receive the full DAST module due to skip patterns in the questionnaire. This includes participants who reported use of one or more substances elsewhere in the survey but who skipped out of the full DAST module.

estimation. Finally, we applied Poisson regression with multiple model specifications to identify whether barriers were associated with the number of visits to behavioral health services in the past 12 months.

● Results

Supplement digital content Table 1s is available at <http://links.lww.com/JPHMP/A203> summarizes individual characteristics of the sample. Out of a total of 567 people included in the International Latino Research Partnership project, 281 fulfilled the inclusion criteria for this study. All participants from Spain were first-generation immigrants, whereas a third of the Boston participants were second generation. Participants from Madrid and Barcelona were similar to participants from Boston in gender distribution, racial/ethnic composition, and economic status, but not age, with Boston participants being older than those from Spain (Boston vs Madrid, $P = .002$; Boston vs Barcelona, $P < .001$). All 3 sites were similar in terms of

clinical measures, except that participants from Madrid and Barcelona were more likely to have lower posttraumatic stress disorder symptoms (Boston vs Madrid, $P < .05$; Boston vs Barcelona, $P = .08$), higher alcohol abuse (Boston vs Madrid, $P < .001$; Boston vs Barcelona, $P < .001$), and higher health literacy (Boston vs Madrid, $P < .001$; Boston vs Barcelona, $P = .002$) than participants from Boston. Participants in Boston had longer residence in the host country with a mean residency of 27 years. Once the second-generation immigrants are excluded from the analysis, this mean is reduced to 25 years. Participants in Boston also experienced a higher degree of discrimination, and reported stronger ethnic identity and a greater sense of belonging than their Barcelona and Madrid counterparts. Compared with Boston, Madrid and Barcelona had a lower share of recruitment from primary care clinics and a higher proportion of patients in clinics specialized for substance abuse treatment.

Table 1 presents the prevalence of individual barriers at each study site. The most prevalent barriers were the desire to handle a problem on one's own

TABLE 1 ● Frequencies of Individual Barrier by Site (n = 281)^a

Individual Barrier	Boston (n = 111) n (%)	Madrid (n = 67) n (%)	<i>P</i> (Madrid vs Boston)	Barcelona (n = 103) n (%)	<i>P</i> (Barcelona vs Boston)
Attitudinal barriers					
Want to handle the problem on your own	62 (56)	43 (64)	.315	66 (64)	.228
Think the treatment would not work	45 (40)	27 (41)	.982	46 (45)	.517
Received treatment before and it did not work	35 (32)	9 (14)	.009	32 (31)	.921
Concerned about how much money it would cost	36 (33)	21 (32)	.926	48 (46)	.049
Concerned about what people would think if they found out you were in treatment	39 (35)	27 (40)	.539	41 (40)	.441
Structural barriers					
Have problems with things like transportation or scheduling	57 (52)	21 (31)	.011	34 (33)	.005
Unsure about where to go or who to see	49 (44)	32 (48)	.597	46 (45)	.890
Scared of being put in a hospital against your will	54 (49)	20 (29)	.014	31 (30)	.006
Concerned that you could be treated unfairly because of your race or ethnic background	38 (34)	11 (17)	.016	25 (24)	.097
Think oneself might not be able to communicate because of linguistic barriers	35 (32)	0 (0)	<.001	10 (10)	<.001
Other obstacle you encountered	20 (18)	15 (22)	.588	17 (17)	.764

^aAll barrier indicators are binary variables. Row frequencies and percentages for positive outcome are reported by site.

(64%-54%), thinking that treatment would not work (40%-45%), and being unsure of where to go or who to see (48%-44%). Structural barriers such as transportation or scheduling problems were identified as more problematic in Boston than in Madrid or Barcelona (Boston vs Madrid, $P < .05$; Boston vs Barcelona, $P < .01$). A third of the participants from Boston acknowledged linguistic barriers, whereas fewer than 10% reported this barrier in Madrid or Barcelona. Significant site differences were found regarding fear of involuntary hospitalization (Boston vs Madrid, $P < .05$; Boston vs Barcelona, $P < .01$) and concerns about unfair treatment because of ethnic background (Boston vs Madrid, $P < .05$; Boston vs Barcelona, $P = .097$).

After adjusting for sociodemographics, clinical measures, degree of health literacy, and cultural and social factors, reports of certain barriers still differed significantly across sites. Supplement digital content Table 2s available at <http://links.lww.com/JPHMP/A204> reports odds ratios, and each column presents separate models for specific barriers. Column 2 shows that participants from Madrid and Barcelona were 2 to 3 times more likely than their Boston counterparts to report dealing with mental health problems on their own. The next 6 columns demonstrate that participants from Boston had much higher odds of encountering the following 2 barriers: difficulties in transportation or scheduling, and linguistic barriers in communication. Linguistic barriers were significantly more common for participants with higher scores on inadequate health literacy and higher perceived discrimination scores.

After controlling for confounding factors such as sociodemographics, clinical profile, and cultural and social factors (presented in supplement digital content Table 3s available at <http://links.lww.com/JPHMP/A205>), we found no significant site differences in presence of multiple barriers. Our full model (ie, Model 3) shows that females were more likely to experience multiple barriers as compared with males. Age had a negative correlation with number of barriers, with younger patients reporting more barriers to care than their older counterparts. In addition, those with higher symptoms of depression reported more barriers to care.

Supplement digital content Table 4s available at <http://links.lww.com/JPHMP/A206>, illustrates how service use in the past 12 months is associated with demographic, cultural, and social factors as well as with the reported barriers. One perceived barrier associated with less service use was concern about the cost of services. Paradoxically, uncertainty about where to go or who to see was significantly related to increased use of services. Significantly less service use was found among participants from Madrid and Barcelona relative to those from Boston after adjusting for multiple confounding factors and barriers in care. From the sen-

sitivity analysis that excluded missing DAST data, we observed that the results remained unchanged except for the financial barrier, which became insignificant in Models 2 and 3.

● Discussion

To our knowledge, this is one of the few published studies that comprehensively examine perceived barriers associated with retention in behavioral health treatment among Latinos in 2 host countries. Out of 11 barriers, handling the problem on one's own or self-reliance, doubts about the efficacy of treatment, and uncertainty about where to go or who to see for treatment were reported most frequently at all 3 sites. Desire to handle the problem on one's own was reported more frequently by younger, female participants and those who migrated recently and had a high ethnic identity. These associations are consistent with other studies that suggest higher levels of ethnic identity, Spanish-language usage, preference for social interactions with other Latinos, and recent migration predict lower access and service utilization.^{12,49-53} Consistent with the literature, Latino young adults avoid care, search for informal care by going to family members, or use home remedies and traditional healers.⁵³⁻⁵⁵ Consequently, outreach campaigns that emphasize when professional behavioral services are warranted could facilitate earlier entrance into care among immigrant populations as a public health intervention. However, more research is needed to understand the types of public health messages that might encourage people to see the benefits and perils of self-reliance when behavioral health problems are exacerbated.

Lack of trust in treatment and in the behavioral health system along with experiences of discrimination from health care providers are additional contributing factors that lower access and retention in treatment among Latinos.^{53,56} Implementing screening interventions by trained community health workers in community settings could reduce mistrust in treatment and accelerate the public health goal of early detection and engagement in care.

Uncertainty about where to go or who to see for mental health service was a structural barrier reported by many participants at the 3 sites, underscoring the importance of dissemination of service options to primary care providers and community agencies that serve immigrant populations, with walk-in options to access care. The finding that females are more likely to report more barriers to care than their male counterparts suggests the importance of tailoring services to take into account the multiple roles women have that reduce their opportunities for self-care.⁵⁷ Other settings,

like Latino common workplaces, should be tested for such outreach. Culturally sensitive programs or patient navigators that educate patients on navigating the health system could also improve access to and retention in care. Once patients begin receiving services, providers should assess perceived barriers and focus on practical solutions. Motivational and psychoeducational interviewing techniques could be used to engage, reassure, and encourage patients to overcome perceived barriers while improving treatment adherence.⁵⁸

Differences by site

Latinos from Spain, who were more likely to be recent immigrants, reported significantly higher rates of wanting to handle problems on their own than those in Boston. This barrier also reflects the double stigma concept reported in the literature regarding immigrant populations.^{29,30} Moreover, recent immigrants could be less targeted by outreach and health awareness campaigns, particularly in Spain, where it is assumed that Latinos do not face linguistic or insurance barriers. This overlooks cultural differences that may contribute to barriers to treatment. We recommend that providers in Spain pay specific attention to attitudinal factors such as self-reliance that could interfere with care.

Boston participants, who reported more difficulties accessing transportation to attend and schedule their appointments, may confront less affordable public transportation systems than in Madrid and Barcelona.^{59,60} Moreover, higher rates of employment in Boston may mean that a greater number of participants had difficulty leaving work to attend appointments. Research suggests that structural factors like financial costs, time off from work, and transportation are significant reasons that Latinos leave therapy.⁶¹ This suggests alternative services like telemedicine or phone therapy could help with these barriers. Fear of involuntary hospitalization was reported by almost half of the participants in Boston, significantly more than in Spain (30%). Coercive treatment experiences have been proven to deter voluntary help seeking.⁶² These differences may be due to the link between mental health and the criminal justice system in United States, where there is an important interplay between criminal justice and mental health.⁶³⁻⁶⁵ Alternatives to incarceration are urgently needed to mitigate this barrier.⁶⁶

Although Latinos in Boston more commonly reported linguistic barriers, a small number of Latinos in Barcelona reported linguistic barriers, probably due to the use of Catalan by their providers in Eastern Spain. Currently, the lack of linguistic resources in health care settings is a major barrier in the United States.⁶⁷ Inability to communicate mental health concerns can interfere with the diagnostic process, impair patient edu-

cation, decrease compliance and follow-up, and result in patient dissatisfaction.⁶⁸⁻⁷⁰ In fact, patient-provider language match may be positively related to patients' retention in treatment, longer length of treatment,⁷¹ and reduced waiting time for entering treatment.⁷² Perception or anticipation of a linguistic barrier during the first contact with health professionals could discourage individuals from seeking care.⁷³

Correlates of services use

After adjusting for multiple confounding factors, significantly lower odds of service use were found among participants in Madrid and Barcelona relative to Boston despite the existence of universal health care and more readily available transportation systems in Spain. The Latino population in Spain has a more recent immigration history with a high prevalence of irregular residential status and less citizenship, which could contribute to lower inclination to seek services compared with Boston, where 72% of participants had achieved citizen status. Low health literacy was also found to be significantly related to lower service utilization. These results highlight the importance of increasing mental health psychoeducation among Latinos to address concerns about treatment and stigma and emphasize how negative consequences could be avoided by early entrance into care.

The number of visits for behavioral health services over a 12-month period was associated with 2 perceived structural barriers: financial concerns about services and lack of knowledge about where to go or who to see to get services, which was, interestingly, associated with a higher use of services. Not knowing where to go or who to see could not only delay treatment, but could ultimately result in longer treatment because of a more severe clinical profile.⁷⁴

Limitations

This study has several limitations. First, the study included Latinos already accessing health services, with other barriers being more prevalent among those with out of any contact with the health care system. Although our analysis controls for many factors that differed between sites, the Latino populations across the 3 sites vary in terms of country of origin and representation of Latino subgroups. There could be underlying differences in attitudes about seeking mental health care between subgroups that might contribute to the observed differences between sites. It should be noted that regarding the statistical analysis, a sensitivity analysis indicated that the inclusion of missing DAST data changed the significance of only 1 barrier. Finally, at this time of this study, information on participants

response rate was not being recorded. Consequently, we do not have information about the percentage of people willing to respond to the interview relative to the total number of Latinos attending each clinic. Nonetheless, we contacted approximately 46 different clinics and community associations, and thus reached a large proportion of the Latino community at each of the 3 sites. Notwithstanding these limitations, the study offers fruitful information about the importance of tailoring outreach to context when addressing barriers to care.

● Conclusions

Educational campaigns, use of peer navigators, and prevention programs targeting Latino's self-reliant attitudes about behavioral health care may increase initiation and reduce attrition from mental health treatment.⁵ There are differences between the barriers reported among Latino immigrants in Barcelona, Madrid, and Boston after controlling for demographic and clinical variables. Efforts to improve entry and retention in behavioral health services like improving access to public transportation, scheduling flexibility, improving educational campaigns about services, and increasing Spanish-speaking care providers' availability are critical to improve treatment retention in Latino populations.

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VIEWPOINT

Clinical Care Across Cultures What Helps, What Hinders, What to Do

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Today's clinicians must develop therapeutic alliances with patients with diverse customs, values, and experiences. This can be challenging, as clinicians must make decisions quickly, opening the door to attributional errors and unconfirmed assumptions about patients. In one study,¹ white therapists were more likely than Chinese therapists to describe Chinese patients as having depression with interpersonal skill deficits, while Chinese therapists judged white patients as demonstrating more severe psychopathology than did white therapists.¹ Problems stemming from the power imbalance between majority group clinicians and minority group patients are exacerbated when the patient is poor, nonwhite, or does not speak English well. Research shows that those who are powerful (typically clinicians) are prone to making hasty judgments, often applying stereotypes to the behavior of others.² Because of time constraints and unconscious biases, clinicians may not spend sufficient time in "perspective taking" to understand the patient's circumstances and may see themselves as more objective than they are.

Given these findings, it is unsurprising that members of racial and ethnic minority groups experience disparities throughout the behavioral health care continuum. As the Institute of Medicine Unequal Treatment Report concluded, applications of heuristics contribute to the core paradox of clinical encounter disparities: "How then, could well-meaning group of health care professionals, working in their usual circumstances with diverse populations of patients, create a pattern of care that appears... to be discriminatory?"³ Current policy shifts, including efforts to reduce insurance coverage for Medicaid patients or targeting large numbers of undocumented immigrants for deportation, are likely to augment disparities by reducing opportunities to access care and increasing the mistrust of institutions.

After conducting research in linguistically and culturally diverse community mental health clinics, we have gained firsthand appreciation of the challenges that clinicians confront in these settings. Meeting the needs of people from diverse backgrounds involves providing culturally adapted evidence-based practices (EBPs) in a patient's primary language while ascertaining their goals for treatment, which likely differ based on social, cultural, and geographical circumstances. However, while there is growing evidence that EBPs are effective for members of racial/ethnic minority groups, almost no US studies enroll enough diverse patients to conduct group-specific analyses to provide clinical guidance regarding what treatments work, for what populations, and for what conditions.⁴ Our experience shows that after incorporating adequate cultural and linguistic adaptations, clinicians can tailor many EBPs to treat broad cul-

tural groups (like Latinxs from different countries and socioeconomic conditions), but few EBPs have been culturally adapted. Testing and adaptation often happens at the individual clinical encounter level, but without sufficient guidance. Clinical supervision—itsself a scarce commodity after formal training—rarely includes evidence-based ways to develop expertise in crosscultural encounters, leading to quality in treatment disparities. Thus, it is virtually impossible for clinicians to be up-to-date on EBPs, receive training to competently manage crosscultural encounters, and have the time necessary to practice effective and collaborative behavioral health care with diverse patients.

The challenges are also immense for patients. As patients or clinicians, we are aware of our position in the social structure of language and interactions in the clinical visit. These social and cultural differences can be problematic. Patients who speak a different language than their clinicians experience worse outcomes and higher dropout rates.⁵ Some research suggests that perceived personal similarities between patients and clinicians are associated with higher patient ratings of trust and health care quality.⁶ Yet, across the country, the percentage of black and Latinx psychiatrists and black, Latinx, and Asian psychologists and social workers is well below the representation of those groups in the population, including those seeking treatment.⁴ For American Indian/Alaska Native populations, limited clinical service availability and severe underrepresentation in research make it unclear whether specific treatments are effective.⁷ Clinical and social outcomes of some EBPs might be moderated by a patient's ethnicity/race or language but, more importantly, might vary by what are considered culturally accepted behaviors. This backdrop reflects the urgency of evaluating whether treatments reflect the same outcomes or preferences for these outcomes across diverse population ethnic/racial subgroups.

What can we do about these persistent disturbing disparities with the limited resources that are available? First, we must acknowledge that change needs to come from systems of care rather than from ethnic/racial minority patients. Clinicians, researchers, and policymakers should avoid reinforcing group stereotypes and thinking of patients themselves as being difficult to access or retain in services. Rather, systems should be responsible for making treatments accessible and acceptable to diverse patients. To identify access issues and unmet needs among specific groups, examine the ethnic/racial distribution of who schedules a first appointment compared with the population that is served. Examine engagement by looking at who returns for a second visit compared with the first. Explore flexibility

and adaptability in how (eg, home visits, telehealth), where (eg, medical vans, community agencies), and by whom (eg, community health workers, trained peer specialists) care is offered. The World Health Organization Mental Health Gap Action Program provides useful evidence-based intervention tools for nonmedical health workers worldwide. Giving patients a range of options increases the likelihood that patient preferences can be accommodated in treatment. In our experience and the experience of other researchers, working first with a patient's perceived attitudinal and structural barriers (including through motivational interviewing) provides useful information to improve engagement, while repeated outreach is necessary to improve retention rates.

Second, cultural brokers and specialized supervisors can help clinicians navigate crosscultural encounters when no specific treatment adaptations are available. For example, empowering existing community agencies with training in mental health screening and treatments reduces help-seeking barriers and improves depression outcomes.⁸ Linguistic barriers may impede opportunities to obtain a shared meaning of what the problem is or what the solutions are, so cultural brokers might help bridge cultural and social gaps between patients and clinicians. Because a cultural match between clinicians and patients will be rare, clinical supervision should address power differentials in their therapeutic relationship.

Third, shared decision making, in which both patients and clinicians hold expertise and work together to make a decision, may

be a particularly helpful tool, because patients become coproducers of the treatment session. There is evidence that shared decision making increases patient satisfaction with services and yields a greater perceived value of care. This is especially necessary when there is a discrepancy between EBPs and culturally-based patient preferences. In such instances, shared decision making is an alternative to ensure that preferences are incorporated in treatment designs. Clinical session recordings can be reviewed with supervisors or cultural brokers to reflect on who initiates topics, how much the patient engages verbally, and how to encourage patients to become activated. Here we emphasize the importance of the cultural formulation of how patients understand their problems and what matters most to them as potent factors in treatment. To preserve active listening, respect, and humility toward patients, clinicians may need coaching to provide patients opportunities to become experts and help them find viable options for illness management. This may mean letting go of verbal and professional dominance in parts of the clinical encounter, explicitly checking assumptions that are being made, and being more curious and open in exploring the solutions patients offer to their problems.

The behavioral health community has an opportunity to capitalize on the research base about how to improve crosscultural clinical encounters, hear the patient's voice, and create an equal partnership in problem solving, with the wisdom and trust to collaborate in finding joint solutions.

ARTICLE INFORMATION

Published Online: July 26, 2017.

doi:10.1001/jamapsychiatry.2017.1994

Conflict of Interest Disclosures: None reported.

Funding/Support: This work was supported by the National Institute on Aging and the National Institute of Mental Health through National Institutes of Health grant R01AG046149 and award CD-12-11-4187 from the Patient Centered Outcomes Research Institute.

Role of the Funder/Sponsor: The funding organizations had no role in the collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; or decision to submit the manuscript for publication.

Disclaimer: The content of the article is solely the responsibility of the authors and does not necessarily represent the official views of any of the funding institutions.

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Psychiatric
Services

**Barriers to care as predictors of adherence to treatment in a
culturally centered behavioral therapy for Latino migrants**

Journal:	<i>Psychiatric Services</i>
Manuscript ID	Draft
Manuscript Type:	Regular Article
Subject Categories:	Adherence - PS0157, Cognitive therapy - PS0393, Community mental health services - PS0066, Dual diagnosis - PS0311, Cross-cultural issues - PS0078

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BARRIERS TO CARE AS PREDICTORS OF ADHERENCE TO TREATMENT IN A CULTURALLY CENTERED
BEHAVIORAL THERAPY FOR LATINO MIGRANTS

Disclosures and acknowledgments: None of the authors have any conflicts of interest to disclose.

Grant support: International Latino Research Partnership. Research reported in this publication was supported by the National Institute on Drug Abuse (NIDA) of the National Institutes of Health under Award Number R01DA034952 and the National Institute of Mental Health (NIMH) under Award number R01MH100155. *The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.*

Word count: 3002

Abstract:

Objectives: To assess the influence of self-perceived barriers to care prior to an integrative therapy for Latino migrants with co-occurring disorders (mental health and substance abuse) on treatment retention. **Methods:** A prospective analysis nested within a multi-site randomized control trial of an integrative, culturally centered psychotherapy intervention for Latino migrants (IIDEA) based on cognitive-behavioral therapy, psychoeducation, and mindfulness. Participants (ages 18-70) were recruited in clinics and Latino-serving community organizations in Boston (U.S.), Madrid and Barcelona (Spain) and screened positive for mental health and substance abuse problems. 172 Participants were assessed for depression, anxiety, post-traumatic stress disorder, smoking, drug and alcohol use, self-reported barriers to service access, family conflict, ethnic identity, health literacy, discrimination, and socio-demographic variables. Multinomial logistic regressions examined potential barriers reported at baseline that could be predictors of treatment retention in addition to socio-demographics, clinical history, social and cultural factors. **Results:** Mistrust in behavioral treatment was significantly associated with completion of the IIDEA program, with those reporting mistrust as a barrier showing higher rates of completion as compared to those that did not report mistrust as a barrier. Education and perceived discrimination were also found to be predictors for completing the IIDEA program. **Conclusions:** Assessing barriers to treatment and perceived discrimination before initiating interventions should be a routine procedure as it may help predict retention in treatment. Evidence-based and culturally-centered interventions may address cultural mistrust and increase retention in behavioral treatment among Latinos.

INTRODUCTION

Latinos represent the largest immigrant population in both the US and Spain [1]. These immigrants may experience limited accessibility of behavioral health services [2, 3], low quality of services, and a lack of continuity of care [4], all of which pose challenges to public health systems. Although disparities in behavioral health care among Latinos have been well-documented in the US [5], there is a paucity of research in both countries that identifies indicators of treatment retention within Latino populations [6]. Analyzing factors related to retention may suggest possible solutions to inequities in healthcare.

A complex array of psychological, cultural, social, and demographic factors may facilitate (or impede) health service access and retention [7]. Decreasing barriers to care is a critical task for clinicians and administrators. Per Andersen's healthcare utilization model, improving access to care is accomplished by focusing on contextual and individual factors that shape health behaviors [8-10]. The model explains how clinical symptoms and severity play an essential role in shaping people's use of services. Social and cultural characteristics, such as educational level, ethnicity, and employment, are related to treatment retention [11]. Occupation, income, and health insurance are associated with utilization of services. Gender and age represent key predictors of service access and retention [12-15]. Women are less likely to use substance use treatment services [14, 16], and are at greater risk than males for not accessing mental health treatment when needed [17]; however, women have greater treatment retention when they have higher income and more education, and in specific treatment settings [18-21].

Existing literature suggests that individuals with co-occurring mental health and substance abuse disorders (COD) access mental health and substance use treatment at extremely low rates compared to individuals without co-morbidities [22, 23]. Only 9.1% of these individuals receive treatment for both disorders, and 52.5% receive no treatment at all [24]. Integrated treatments are among the most effective for decreasing both substance use and mental health symptoms in persons with COD [25, 26]; however, Latinos in particular face unique barriers that may inhibit their access to specialized treatment

[27]. Chavira and colleagues showed lower treatment attendance and understanding of CBT psychotherapy principles among Latinos than non-Latino Whites [28]. In a previous study, our group identified barriers to care and retention in behavioral health treatment among Latinos [29]. Self-reliant attitudes about behavioral health care (e.g. wanting to handle problems on one's own and thinking treatment would not work) and structural barriers (such as difficulties in transportation and scheduling flexibility) surfaced as significant obstacles to treatment retention. Latino women indicated a significantly higher number of barriers to access and higher retention than Latino men [29]. Studies comparing two ethnic communities have shown that non-Latino participants have higher rates of treatment attendance and completion than Latino participants. These differences have been attributed to logistical, motivational and attitudinal factors [30, 31]. Studies that used culturally adapted interventions for Latinos demonstrated higher rates of retention [32].

We conducted a multisite randomized trial of the "Integrated Intervention for Dual Problems and Early Action" (IIDEA), which was designed specifically for immigrant and US/Spain born Latino populations with COD (Alegria M. NIDA 5R01DA034952-02). The trial took place at three sites (Boston, Madrid, and Barcelona) and incorporated a community-based approach. Treatment took place by phone and in person, and included extended outreach on Saturdays and Sundays.

The current study aimed to assess the association of perceived barriers prior to treatment, as well as clinical, cultural and social factors, with treatment retention in a culturally adapted integrative therapy for Latinos with COD. We evaluated predictors of retention for three groups of participants: participants who received 1-5 sessions, participants who completed treatment (6-10 sessions), and a non-initiated group (0 sessions).

We hypothesized that:

1. Greater severity of mental health and substance use symptoms would be related to greater treatment retention than lower symptom severity.

2. Females would be more likely to participate in and complete the intervention.
3. Perceived barriers to service will be associated with lower rates of retention.

METHODS

Data were drawn from baseline interviews and clinical trials from the International Latino Research Partnership (ILRP), a multisite study (NIDA Trial 5R01DA034952-02). The clinics in the US and Spain were associated with large safety-net health care systems that served diverse populations. Data collection activities were conducted between September 2014 and February 2017. The study was approved by the review boards of the participating institutions. All participants provided informed consent before participating.

Participants were 18 years or older, self-identified as first- or second-generation Latinos (from any Spanish-speaking Caribbean, Central, or South American country), and screened positive for COD. COD was assessed with the AC-OK screener for behavior disorders, a 15-item questionnaire about mental health and drug abuse ($\alpha=0.82$ for mental health and 0.90 for substance abuse) [34]; individuals were eligible if they endorsed two mental health and two substance use symptoms.

Procedures

2284 Prospective participants were approached directly by the research team in clinic waiting rooms or referred to the ILRP research team by agency staff and then contacted by phone. Trained interviewers conducted the research assessments in Spanish or English depending on the participant's preferred language. Interviews were audio-recorded and lasted approximately one hour. Participants were compensated with \$40/€30 gift cards for the assessment, but not for treatment sessions.

341 Participants were randomized to an IIDEA intervention or a usual care group. The control group was contacted 4 times by a care manager to administer the brief assessment used in clinical sessions. Usual care calls took place once every three weeks after the baseline interview. The care manager also

assisted with the referral process to specialized substance use/mental health services after the completion of the usual care calls.

A member of the research team contacted those randomized to the intervention group (n=172) to schedule the first appointment with a clinician. Clinicians were randomized per patient's availability.

Intervention

The Integrated Intervention for Dual Problems and Early Action Program (IIDEA) was designed to maintain fidelity to evidence-based approaches while addressing a range of mental health conditions (including depression, anxiety, traumatic stress, and mild to moderate drug/alcohol abuse) in Latino adults. IIDEA is a brief, transdiagnostic therapy model adapted to engage and retain Latino participants. The program involves 10 weekly sessions delivered over 3-4 months by trained clinicians who attend weekly supervisory meetings. IIDEA integrates elements of cognitive-behavioral therapy, motivational interviewing, relapse prevention, assertive communication, and HIV/STD risk prevention. Depending on participant needs, the intervention is delivered in-person at a clinic, over the phone, or in-person at the participant's home. The goals of the program are to: engage, elicit, and improve participant coping skills to reduce symptoms of depression, anxiety, and PTSD; improve assertive communication skills; reduce or eliminate alcohol and substance use problems; and reduce HIV/STD risk behaviours. The development of the IIDEA intervention is discussed in the paper, "Development of the IIDEA Therapy for Latino Immigrant Adults with Co-Occurring Disorders (Fortuna, under review)."

Measures

IIDEA treatment retention. We measured retention by the number of treatment sessions attended. The *non-initiated group* included participants who were contacted by a research assistant or clinician but never started treatment, the *attrition group* included those attending 1-5 treatment sessions, and the *completion group* included those attending 6-10 sessions. We determined that 6-10 sessions

represented completion of treatment since participants received all the core elements of the intervention.

Variables from baseline interview:

Barriers to care. We asked participants 11 yes/no questions about potential barriers to treatment they may have experienced. Barriers were divided into *attitudinal* (related to the individual's feelings and values) and *structural* (related to the health care system) categories. Attitudinal barriers included "wanting to handle a problem on one's own", "thinking treatment would not work", and "concerns about poor treatment because of one's ethnic/racial background". Structural barriers included "fear of not knowing how to communicate problems because of language barriers", "previous negative experiences with treatment", "treatment cost", and "problems with transportation and scheduling times".

Social and cultural factors. Participants were asked 3 questions pertaining to racial/ethnic discrimination, as derived from the National Latino and Asian American Study ($\alpha=0.78$) [36]. To assess family conflict, we used 4 items from the Family/Culture Stress subscale of the Hispanic Stress Inventory (HIS) ($\alpha=0.76$) [37]. Sense of belonging was assessed using one item that is also from the Family/Culture Stress HIS subscale [37]. The 3-item Ethnic Identity Scale ($\alpha=0.78$), derived from the Cultural Identity Scale for Latino Adolescents [38], was used to assess cultural identity. Participants also indicated how long they had lived in their host country and the number of visits to their country of origin in the past 12 months [39].

Clinical Factors. To measure depression and anxiety, we used the Patient Health Questionnaire (PHQ-9) ($\alpha=0.89$) [40], the General Anxiety Disorder Scale (GAD-7) ($\alpha=0.90$) [41], and the Hopkins Symptoms Checklist (HSCL-25) ($\alpha=0.93$). To assess trauma, we included the Brief Trauma Questionnaire (BTQ), which assesses traumatic experiences [42], and the Post-Traumatic Stress Disorder Checklist (PCL-C) ($\alpha=0.96$) [43], a self-report measure of PTSD symptoms.

Substance use was measured with the: Alcohol Use Disorders Identification Test (AUDIT) ($\alpha = .90$), a World Health Organization screener for excessive drinking [44]; Drug Abuse Screening Test (DAST) ($\alpha = 0.90$)[45], a self-report instrument designed for clinical screening of; and 8 items from the Benzodiazepine Dependence Questionnaire (BDEPQ) ($\alpha = 0.87$)[46]. Smoking habits were assessed using the Fagestorm Test for Nicotine Dependence, a standard instrument for assessing addiction to nicotine [47].

We created composite variables for mental health (including the PHQ-9, GAD-7 and PCL-5) and substance use (including the AUDIT-C, DAST-10 and selected items from the BDEPQ), which were standardized to a scale of 0-100.

Health Literacy. Health literacy was measured with three questions from the Health Literacy Screening Questionnaire [48], which assesses basic skills needed to understand health care information. A question was included from the Single Item Literacy Screener (SILS)[49] to identify patients with limited reading ability.

Demographic variables. Demographic variables included age, gender, ethnicity (White, Black, Indigenous/native American, Hispanic/Latino/Caribbean and Mixed), education level, as well as economic, immigration, and employment status

Statistical Analysis

Analyses were performed using Stata (version 14) [50]. We compared the distribution of demographic, clinical, cultural and social factors, as well as treatment barriers, among three subgroups (non-initiated, attrition, and completed). Bivariate regression and the Pearson Chi-square test were used to detect significant inter-group differences. We further assessed the association between each individual barrier and treatment adherence using multinomial logit models while controlling for other confounding predictors. To mitigate the issue of multi-collinearity among baseline predictors, we employed a backward-selection procedure to determine the best model specification and exclude covariates that

were weakly correlated with outcomes ($P>0.25$). We present results in 2 models: the first includes a list of baseline predictors (i.e., education and employment status, benzodiazepine dependence, discrimination as well as two measures of barriers to treatment) surviving from backward selection, and the second presents an alternative model where the most prevalent barrier was excluded from the analysis.

RESULTS

Treatment retention

Across sites, 16.8% of the participants never initiated treatment, 30.8% attended 1-5 sessions, and 52% of participants attended 6-10 sessions. Table 1 summarizes individual characteristics of each group. Of note, older Latinos had greater treatment retention than their younger counterparts ($p<0.05$) and participants with higher education levels attended more sessions ($p<0.001$) than those with lower education levels.

As shown in Table 2, participants with a higher score in the Hopkins Symptom Checklist ($p<0.01$) and those reporting higher levels of anxiety ($p=0.053$) had significantly greater retention than participants with lower depression and anxiety scores. Individuals with benzodiazepine abuse had significantly greater retention than those who did not abuse benzodiazepine ($p<0.05$). As shown in Table 3, treatment retention was not related to any of the assessed cultural or social factors. Latinos who reported at least one barrier to service access had higher retention rates than those participants who did not report any barrier ($p<0.001$). Participants that reported more than three barriers showed greater retention than those who reported less than three barriers ($p=0.002$).

Reported Barriers and Adherence

Table 4 shows the association of barriers with treatment retention. After using backwards selection and adjusting for confounding predictors, “wanting to handle the problem on one’s own” at baseline was associated with staying in the program for 1-5 sessions (OR=3.94, CI= [1.20,12.94]) but not with

treatment completion. The barrier “thinking that the previous treatment did not work” predicted treatment completion (OR=5.25, CI= [1.62,17.04]). When “wanting to handle the problem on one’s own” was excluded from the analysis, significance persisted for “thinking that the previous treatment did not work.”

Being employed predicted participation in 1-5 sessions of the program as compared to being unemployed. Higher education and higher perceived discrimination were predictors for completing the program (OR 3.38 and OR 1.09, with CI= [1.14,9.98] and [1.00,1.18]).

DISCUSSION

This is one of few published studies to examine perceived barriers to care associated with treatment retention for a culturally adapted cognitive behavioral intervention for COD symptoms in Latino immigrant populations.

Severity of symptoms directly related with adherence to intervention program

As hypothesized, participants who reported more severe mental health symptoms exhibited greater treatment retention than those with less severe symptoms. Consistent with the literature, severity of symptoms is an important predictor of treatment retention [7] and should be considered when developing clinical trials. Research has shown that mental health symptoms and history at baseline are associated with symptom improvement after cognitive therapy [51-53]. Our findings did not show any relationship between severity of substance use symptoms and retention, which may reflect the low levels of substance abuse in our study population. Previous literature indicates that treatment retention among individuals with COD is less likely when the severity of substance abuse is low [24].

Contextual and demographic factors

Consistent with prior literature, older participants in our study showed greater retention than their younger counterparts [18, 54, 55]. Older participants may have more availability to attend therapy due to fewer family obligations, a common burden for younger populations [54, 56]. Being employed was

not associated with treatment retention; this may be due to the flexibility of the intervention, which offered sessions by phone or during weekends. Higher education levels were associated with treatment completion, perhaps reflecting better understanding of the problem and the need for services [57, 58]. There were no differences in treatment retention by gender which is inconsistent with prior literature. This may be explained by flexibility in the treatment approach and scheduling.

Reported barriers at baseline predict adherence to treatment

Contrary to expectations, participants who reported a higher number of barriers showed greater retention than those reporting lower number of barriers. Individuals who reported the most prevalent barrier (“willing to handle the problem on one’s own”) were more likely to attend 1-5 treatment sessions than those who did not. Similarly, participants who reported mistrust in treatment (“previous treatment would not work”) were more likely than Latino’s who did not report this attitudinal barrier to complete the program. Patients who had greater retention reported higher levels of discrimination and mistrust in previous programs at baseline compared to those who did not. There are several possible explanations for this result. Cultural and linguistic matching between patients and providers may help address cultural mistrust. A meta-analysis of cultural matching between therapists and patients [61] found that patients showed a strong preference for therapists of their own ethnicity and a tendency to perceive therapists of their own ethnicity positively. An observational study of Latino patients that analysed communication between ethnically-matched and non-matched patient-provider dyads suggested that communication patterns may explain the positive role of provider-patient concordance in the continuation of care [62]. Research has also shown that linguistic matching impacts therapeutic alliance and improves quality of care [63]. Cultural tailoring of psychotherapy interventions may also help address mistrust among immigrant populations. Research shows that cultural adaptation improves treatment engagement and completion [64-66], especially when the adaptation utilizes metaphors and symbols that match the patient’s worldview and implicitly addresses cultural factors [67]. Finally, the

IIDEA program engaged patients by providing care in community-based health clinics and agencies, allowing flexibility in the scheduling of treatment sessions, facilitating treatment in patients' preferred language, and using extensive follow-up procedures (e.g., calling before each session). These factors may help explain why participants perceiving higher discrimination and mistrust in services were retained in the intervention.

Strengths and weaknesses of the study. The study highlights the importance of exploring barriers to care before initiating an intervention among Latino immigrants. Our findings also contribute to the evidence on addressing cultural mistrust and improving treatment retention using intensive, community-based approaches with culturally-tailored interventions. The study included Latinos with wide heterogeneity of patients across the three sites. However, there are several limitations. Although our analysis controlled for many factors that differed between the three sites, the Latino populations vary in terms of country of origin and representation of racial and education subgroups. There may be underlying differences in attitudes towards mental health treatment across subgroups that contribute to the observed differences in those who completed the sessions and those who did not. Second, some individuals with a high number of barriers to care may not be aware of these barriers and consequently, may not report them. Their biggest barrier may be thinking that they do not have a mental health or substance problem. We did not assess in detail for problem recognition. These individuals could also drop out of treatment early, unaware of the potential benefits of treatment. Despite these limitations, this study offers important insight on the importance of exploring barriers to treatment and tailoring interventions to specific ethnic groups.

CONCLUSIONS

This study provides valuable information on how perceived barriers to care might influence treatment retention in an integrative and culturally-centered intervention for Latino migrants with COD. Contextual and individual factors and their association with retention were also assessed. Our findings

indicate that assessing barriers to treatment and perceived discrimination before initiating an intervention should be a routine procedure as it allows the clinician to address individual perceptions that may impact treatment retention. Evidence-based and culturally-centered interventions may address cultural mistrust and increase behavioral treatment among Latinos.

Acknowledgements

This research was supported by the National Institute on Drug Abuse (NIDA) of the National Institutes of Health under Award Number R01DA034952 and the National Institute of Mental Health (NIMH) under Award number R01MH100155. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health. We acknowledge the contribution of participating patients and clinicians across the 3 sites. Without their cooperation, the study would have been impossible to conduct. Furthermore, we gratefully thank Sheri Lapatin, Lizbeth Herrera and Naomi Ali for their assistance during the study.

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For Review Only

Table 1: Adherence to treatment and Sociodemographic individual characteristics

	N	Total Intervention Sample (n=172) mean or %	No treatment (n=39) mean or %	Received 1-5 Treatment Sessions (n=44) mean or %	Received 6 and More Sessions of Treatment (n=89) mean or %	P-value
Site						
Boston	44	25,6%	20,5%	25,0%	28,1%	0,204
Madrid	41	23,8%	12,8%	29,6%	25,9%	
Barcelona	87	50,6%	66,7%	45,5%	46,1%	
Age Category						
18-34	100	58,1%	61,5%	72,7%	49,4%	0,040
35-49	48	27,9%	33,3%	15,9%	31,5%	
50+	24	14,0%	5,1%	11,4%	19,1%	
Gender						
Male	78	45,3%	56,4%	45,5%	40,4%	0,248
Female	94	54,7%	43,6%	54,5%	59,6%	
Ethnicity						
White	29	16,9%	20,5%	11,4%	18,0%	0,254
Black	9	5,2%	0,0%	13,6%	3,4%	
Indigenous/native American	9	5,2%	5,1%	4,5%	5,6%	
Hispanic/Latino/Caribbean	21	12,2%	10,3%	11,4%	13,5%	
Mixed	103	59,9%	64,1%	59,1%	58,4%	
Education level						
Less than High School HS Diploma, GED, Vocational School, or More	68	39,5%	43,6%	59,1%	28,1%	0,002
	104	60,5%	56,4%	40,9%	71,9%	
Economic Status						
Live check-to-check or poor Live very well or comfortably	36	20,9%	25,6%	22,7%	18,0%	0,944
	13	7,6%	10,3%	6,8%	6,7%	
Employment Status						
Unemployed	80	46,5%	41,0%	61,4%	41,6%	0,073
Employed	92	53,5%	59,0%	38,6%	58,4%	

Table 2: Clinical Profile at Baseline related to Adherence to Intervention

	N	Total Intervention Sample (n=172)	No treatment (n=39)	Received 1-5 Treatment Sessions (n=44)	Received 6 and More Sessions of Treatment (n=89)	P-value
Depression (PHQ-9)(0-27)	172	10,88	9,97	10,43	11,49	0,297
Generalized Anxiety (GAD-7)(0-21)	172	8,53	7,08	8,23	9,31	0,053
PTSD (PCL)(0-80)	172	27,19	22,46	27,61	29,06	0,123
Drug Abuse (DAST)(0-10)	170	1,27	1,53	1,60	1,00	0,224
Alcohol Abuse (AUDIT)(0-12)	172	5,20	5,28	5,45	5,04	0,815
Benzodiazepines (0-27)	171	2,13	1,72	0,73	3,02	0,011
ASI Alcohol (0-1)	172	0,20	0,15	0,19	0,23	0,120
ASI Drug (0-1)	172	0,04	0,04	0,05	0,04	0,384
Hopkins Symptom Checklist (HSCL)(0-80)	140	31,02	25,68	28,24	34,77	0,009
Smoking Fagestorm (0-10)	143	0,83	0,88	1,14	0,64	0,400
Trauma Exposure						
No	8	4,7%	10,3%	0,0%	4,5%	0,086
Yes	164	95,3%	89,7%	100,0%	95,5%	

Table 3: Social, cultural factors and Barriers reported in Baseline

	N	Total Intervention Sample (n=172)	No treatment (n=39)	Received 1-5 Treatment Sessions (n=44)	Received 6 and More Sessions of Treatment (n=89)	P-value
Citizenship						
Noncitizen	78	45,3%	46,2%	36,4%	49,4%	0,277
Citizen	91	52,9%	53,8%	63,6%	47,2%	
Sense of Belonging						
No	70	40,7%	35,9%	38,6%	43,8%	0,631
Yes	101	58,7%	64,1%	61,4%	55,1%	
Health						
Literacy Scale	170	14,44	14,33	14,36	14,53	0,922
Discrimination Scale	171	9,21	7,90	9,34	9,73	0,521
Ethnic Identity Scale	171	9,44	9,49	9,61	9,34	0,728
Family Conflict Scale	171	2,25	1,87	2,48	2,30	0,374
Acculturalism Stress Scale	170	4,96	4,44	4,33	5,52	0,178
Years in US/Spain	154	10,03	9,97	10,26	9,94	0,981
Reported Barriers						
Number of reported barriers<3	69	40,1%	64,1%	34,1%	32,6%	0,002
>=3 barriers reported	103	59,9%	35,9%	65,9%	67,4%	
Any Reported Barriers						
No barriers	19	11,0%	28,2%	4,5%	6,7%	0,000
Yes with barriers	153	89,0%	71,8%	95,5%	93,3%	

Table 4: Predictors of adherence to intervention**Reference Outcome is no treatment initiated. Presented with Odds Ratio**

Received 1-5 Treatment Sessions	Model 1	Model 2 Excluding first barrier
Want to handle the problem on your own	3.94* [1.20,12.94]	-
Think the previous treatment wouldn't work	2,98 [0.84,10.52]	3,28 [0.96,11.25]
HS Diploma, GED, Vocational School, or More	0,77 [0.24,2.43]	0,84 [0.28,2.54]
Benzodiazepines (0-27)	1,02 [0.84,1.24]	not significant at p=0.25
Employed	0,31 [0.09,1.00]	0.30* [0.10,0.95]
Discrimination	1,06 [0.97,1.15]	1,06 [0.97,1.15]
Received 6 and More Sessions of Treatment		
Want to handle the problem on your own	2,48 [0.89,6.90]	-
Think the previous treatment wouldn't work	5.25** [1.62,17.04]	5.89** [1.89,18.43]
HS Diploma, GED, Vocational School, or More	2,85 [0.94,8.64]	3.38* [1.14,9.98]
Benzodiazepines (0-27)	1,13 [0.96,1.32]	not significant at p=0.25
Employed	1,24 [0.43,3.56]	1,29 [0.47,3.56]
Discrimination	1.09* [1.00,1.17]	1.09* [1.00,1.18]
N	127	127
pseudo R2	0,161	0,161
Exponentiated coefficients; ci in brackets		
* p < 0.05, ** p < 0.01, *** p < 0.001		

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