ABSTRACT

AKCAN, PERIHAN. Acculturation and Adjustment Among Immigrant Youth: A Meta-Analytic Study. (Under the direction of Dr. Sylvia Nassar-McMillan).

International migration has reached extraordinary levels on a global scale. Likewise, immigrants’ acculturation and adjustment patterns into their new settings have obtained considerable attention from scholars. Previous meta-analyses have attempted to lay out the association between acculturation and different forms of adjustment, however, results of this previous research yields conflicting findings regarding the impact of acculturation on adjustment and the moderating effects of contextual factors effecting this relationship. On the other hand, previous meta-analyses have not focused on a specific population such as immigrant youth, examined the academic adjustment patterns, nor looked at the moderating effects of generational status, thus, the significance of the acculturation-adjustment relationship among immigrant youth has not yet been explained in the literature. The present meta-analysis yielded significant but small associations between acculturation and adjustment, whereas no confounding effects of other variables (type of acculturation measure, adjustment domain, culture of origin, generational status, age, and gender) were found on acculturation-adjustment relationship among immigrant youth. Thus, results indicated that immigrant youths who are acculturated are more likely to be adjusted regardless of the type of the acculturation measure, adjustment domain and culture of origin, generational status, age and gender of the individuals. Furthermore, current research advocates for greater application of studies examining acculturation and adjustment relationship among under-represented cultures by examining more contextual factors (generational status, socioeconomic status, immigration status etc.), which will provide more data for future meta-analytic research. Expedient implications for school counselors and
counselor educators, and crucial recommendations for future research and effective school policies are provided.
© Copyright 2017 by Perihan Akcan

All Rights Reserved
Acculturation and Adjustment Among Immigrant Youth: A Meta-Analytic Study

by
Perihan Akcan

A dissertation submitted to the Graduate Faculty of North Carolina State University in partial fulfillment of the requirements for the degree of Doctor of Philosophy

Counseling and Counselor Education

Raleigh, North Carolina

2017

APPROVED BY:

Dr. Sylvia Nassar-McMillan
Committee Chair

Dr. Stanley B. Baker

Dr. Edwin Gerler

Dr. Lisa Bass
BIOGRAPHY

Perihan Akcan was born in Izmir, Turkey on November 2, 1986. She received her Bachelor of Science degree in Elementary Education from Afyon Kocatepe University. Perihan wanted to experience traveling overseas since she was a little girl. Her dream came true with a scholarship that was awarded to her for masters and doctoral education in a US university. Perihan first came to Texas and learned English at University of Texas at San Antonio. That year she faced culture shock, and experienced all the fun that came with new discoveries in a new world as well. Next year she moved to Starkville, Mississippi for her Master’s degree, and quickly learned that she was going into yet another world of wonders and challenges. She received her Master of Science degree in Counselor Education from Mississippi State University in 2012. Those two years that she spent in Mississippi were also the years that she learned about Southern culture, and adjusted more to America. Perihan moved to Raleigh, North Carolina to perceive her doctoral education in Counseling and Counselor Education at North Carolina State University in 2012. During her doctoral education, North Carolina turned out to be her second home away from home, Turkey. Perihan got married to her lovely husband, Mustafa, and they had an adorable baby boy who is two years old already. A precious little baby girl has just joined this small family as well a few days ago. In short, NC State has brought much happiness and goodness to her life. With all of this positive energy, Perihan wants to serve humanity with a passion in multicultural research, and practice.
# TABLE OF CONTENTS

**LIST OF TABLES**.................................................................................................................. vii

**LIST OF FIGURES**................................................................................................................ viii

**CHAPTER 1 – INTRODUCTION**............................................................................................. 1

- Purpose................................................................................................................................... 3
- Statement of the Problem........................................................................................................ 3
- Research Questions................................................................................................................ 5
- Summary of Method................................................................................................................ 5
- Terms, Definitions, and Relevant issues ............................................................................. 5
  - Acculturation....................................................................................................................... 6
  - Adjustment........................................................................................................................ 13
  - Immigrant Youth................................................................................................................ 16
- Conclusion.............................................................................................................................. 18

**CHAPTER 2 – LITERATURE REVIEW**.................................................................................. 19

- Acculturation and Psychological Adjustment...................................................................... 19
- Acculturation and Sociocultural Adjustment .................................................................... 21
- Acculturation and Academic Adjustment ........................................................................... 23
- Prior Meta-Analyses on Acculturation and Adjustment ..................................................... 27
  - Rogler, Cortes, and Malgady (1991) ............................................................................... 27
  - Moyerman and Forman (1992)....................................................................................... 29
  - Yoon, Langrehr and Ong (2011)...................................................................................... 31
  - Gupta, Leong, Valentine, and Canada (2013).................................................................. 33
  - Nguyen and Benet-Martínez (2013) ............................................................................... 36
Conclusion ........................................................................................................................................... 38

CHAPTER 3: METHOD ....................................................................................................................... 40
Meta-Analysis ...................................................................................................................................... 41
Research Questions ........................................................................................................................... 42
Research Design ................................................................................................................................. 43
Population and Sample ....................................................................................................................... 43
Instrumentation ................................................................................................................................. 43
Data Collection ................................................................................................................................... 44
Inclusion criteria. ................................................................................................................................. 45
Exclusion criteria. ............................................................................................................................... 46
Variable Definitions ........................................................................................................................... 48
Data Analysis ...................................................................................................................................... 50
Threats to Validity ............................................................................................................................... 51
Ethical Procedures .............................................................................................................................. 53
Conclusion ....................................................................................................................................... 53

CHAPTER 4: RESULTS ....................................................................................................................... 54
Study Selection ................................................................................................................................. 54
Study Characteristics ........................................................................................................................ 57
Results of Individual Studies ........................................................................................................... 57
Risk of Bias Within Studies ............................................................................................................. 62
Risk of Bias Across Studies .............................................................................................................. 71
Synthesis of Results......................................................................................................................... 72
Assumptions ........................................................................................................................................ 73
Normal Distribution........................................................................................................................... 73
Heterogeneity......................................................................................................................................... 73
Outliers using Cook’s D. ....................................................................................................................... 74
Hypothesis Testing............................................................................................................................... 75

CHAPTER 5. DISCUSSION ....................................................................................................................... 80
Summary of Findings ............................................................................................................................ 80
Limitations............................................................................................................................................ 84
Use of the STROBE statement............................................................................................................. 86
Recommendations for Future Research ................................................................................................. 88
Implications for School Counselors and Counselor Educators ......................................................... 89
Recommendations for Effective School Policies.................................................................................. 92
Conclusions........................................................................................................................................... 94

REFERENCES...................................................................................................................................... 95

APPENDICES..................................................................................................................................... 114
Appendix A............................................................................................................................................ 115
List of Acculturation Scales Used in Included Studies........................................................................ 115
Appendix B............................................................................................................................................ 118
Journal Publication Distribution of Included Studies........................................................................... 118
Appendix C............................................................................................................................................ 119
Characteristics of Included Studies: Frequency of Elements ................. 119
Appendix D ........................................................................................................... 124
Preferred Reporting Items for Systematic Reviews and Meta-Analyses....... 124
LIST OF TABLES

Table 1 Characteristics of Studies Included in Meta-Analysis ........................................60

Table 2 Egger’s Test ........................................................................................................72

Table 3 Summary of the Meta-Analysis on the Association Between Acculturation and Adjustment ..........................................................77

Table 4 Meta-Regression Analysis ..................................................................................79
LIST OF FIGURES

Figure 1. Flowchart of Selection and Coding Procedures (Moher et al. 2009) ...............48

Figure 2. Flowchart of Selection Procedures..........................................................56

Figure 3. Aguayo et al.’s (2011) Study.................................................................63

Figure 4. Cano and Castillo’s (2012) Study............................................................63

Figure 5. Dimitrova et al.’s (2012) Study..............................................................64

Figure 6. Du and Wei’s (2015) Study.................................................................64

Figure 7. Juang and Cookston’s (2009) Study......................................................65

Figure 8. Kashima and Loh’s (2006) Study..........................................................65

Figure 9. Kiang et al. (2013)’s Study.................................................................66

Figure 10. Meghani and Harvey’s (2016) Study.................................................66

Figure 11. Ojeda et al.’s (2015) Study.................................................................67

Figure 12. Ouarasse and van de Vijver’s (2005) Study........................................67

Figure 13. Perreira, Fuligni, and Potochnick’s (2010) Study...............................68

Figure 14. Stoessel et al.’s (2012) First Study....................................................68

Figure 15. Stoessel et al.’s (2012) Second Study...............................................69

Figure 16. Wu’s (2012) Study.................................................................69

Figure 17. Yeh’s (2013) Study.................................................................70

Figure 18. Yoon’s (2012) Study.................................................................70

Figure 19. Funnel Plot.................................................................72

Figure 20. Normal Q-Q Plot of Acculturation..................................................74
Figure 21. Normal Q-Q Plot of Adjustment Domain………………………………………..75

Figure 22. Forest Plot………………………………………………………………………..76

Figure 23. Scatter Plot……………………………………………………………………….76
CHAPTER 1 – INTRODUCTION

Rates of international migration have reached extraordinary levels in the United States (U.S.) and throughout the world. Currently, the U.S. is experiencing a massive wave of immigration larger than the great immigrant waves of the 19th and early 20th centuries (Portes & Rumbaut, 2006). According to U.S. census bureau population projections, more than half of all Americans will be part of a minority group by 2044; and nearly 20% of all nation will be foreign born in 2060 (Colby & Ortman, 2015). On a worldwide scale, there is an influx of migrants from Latin America, Asia, Africa, and the Middle East, where collectivism is encouraged, who are settling primarily in North America and Western Europe where individualism is emphasized more than collectivism. As a result, gaps in cultural values have emerged between many migrants and their receiving societies (Schwartz, Unger, Zamboanga & Szapocznik, 2010).

Because of current wave of immigration, the youth population is getting more diverse too. A current population survey indicates that White students in U.S. public schools have decreased from 29.0 million to 27.7 million, while minority races have increased (Aud et al., 2012). Forty-nine and a half percent of the student population consisted of non-White individuals in 2014 (Cherng, 2015). Due to cultural differences in host and home countries, immigrant youth suffer from several outcomes of immigration. Besides emergent cultural variety, different aspects of diversity such as religion, sexual orientation, disability, and students' individual identities may also create other constructs of diversity (Nassar-McMillan,
Karvonen, Perez, & Abrams, 2009), which may bring other difficulties, and aggravate the process of adapting to a new country.

As a result of contact between two or more cultural groups and their individual members, cultural and psychological change takes place; and this exchange of culture is called acculturation (Berry, 2005). Acculturation is one of the most favored research areas, and is getting attention from many researchers in the fields of counseling, psychology, sociology, education, and health in the multicultural society of academia. Berry’s (1980) model of acculturation is still the leading model in the acculturation literature (Gupta, Leong, Valentine, & Canada, 2013; Shim, Freund, Stopsack, Kämmerer, & Barnow, 2014). Berry (1980) found, some relationships between acculturation and adaptation in his earliest studies, and several researchers proceeded with efforts to unearth the influence of acculturation on adjustment of individuals. Even though there is a bulk of research presenting the effects of acculturation, and its relationship with adaptation of an individual to a new lifestyle, the findings are not well aligned with and supporting of one another.

Depression is an important mental health indicator and has been studied heavily in the research literature. Accordingly, depressive outcomes provide valuable information about the psychological adjustment of immigrant youths. For example, Turjeman, Mesch, & Fishman, (2008) discovered a negative relationship between acculturation and the depression among former Soviet Union immigrant adolescents in Israel; which means more assimilated adolescents who adopted the host country’s identity were less likely to be depressed. Similarly, in Yeh’s (2003) study, American-identified Asian youths in the U.S. reported
fewer mental health symptoms than Asian immigrants who were more Asian-identified. Other studies revealed a null or positive relationship between acculturation and depression for immigrant adolescents (Buddington, 2002; Eyou, Adair, & Dixon, 2000). These confounding and disorienting findings call for more novel and enriched research applications. Although there are numerous meta-analytic studies in the literature revealing the effects of acculturation on adjustment; these meta-analyses are based on a heterogeneity approach, and include all age groups of immigrants, which makes hard to generalize findings to immigrant youths. Therefore, a deliberate and rigorous meta-analytic research is needed to fill this gap in the literature.

**Purpose**

The purpose of this meta-analysis is to examine and interpret the impact of acculturation on adjustment among immigrant youth, with attention to the following:

1. Type of acculturation measure (unilinear, bilinear, or typological measures).
2. Type of adjustment (psychological, sociocultural, and academic adjustment).
3. Culture of origin (Asian, European, Hispanic, Middle Eastern, etc.).
5. Contextual factors (e.g., host culture, age, and gender).

**Statement of the Problem**

The acculturation phenomenon is both essential and popular. Various researchers have addressed the issue of acculturation issues associated with the heightened rate of immigration across the globe. This topic is becoming increasingly important in America
(Consedine, Chentsova-Dutton, & Krivoshekova, 2014). An area of interest for numerous scholars is the psychosocial changes and health of ethnic immigration groups (Schwartz, Unger, Zamboanga, & Szapocznik, 2010). With the technological and transport advances of the 21st century, participation in different cultures becomes easier, resulting in people internalizing different cultures and becoming multicultural. Due to globalization and the multiculturalization of humanity, this research area has become more popular, and has yielded to divergent findings. For instance, some researchers found that individuals who engage in two cultures adapt better than those individuals with an orientation to one culture only (Berry & Sabatier, 2011; Nguyen & Benet-Martínez, 2013), whereas other studies have suggested that less orientation to the host culture results in better adjustment outcomes (Lorenzo-Blanco, Unger, Oshri, Baezconde-Garbanati, & Soto, 2016; Yeh, 2003).

The conflicting findings presented in the generation status literature, for instance, also seem a conflicting factor when it comes to generational acculturation patterns. Whereas the bulk of research findings indicates that members of second generation have better academic outcomes due to their bicultural identities, other findings indicate that first generation immigrants tend to perform better academically (Aretakis, Ceballo, & Camacho, 2015). Due to these divergent finding, acculturation-adjustment relationship has received considerable attention from scholars; however, no meta-analytic study has been performed on a specific population such as immigrant youth in order to investigate the conflicting findings.
Research Questions

1. How and to what degree is acculturation related to adjustment among immigrant youth?

2. Is acculturation-adjustment relationship moderated by factors such as how acculturation is measured (unilinearly, bilinearly, or typologically), adjustment domain (psychological, sociocultural, or academic), culture of origin, generational status, host culture, age, and gender?

Summary of Method

A quantitative, meta-analysis design using a random effects, meta regression model was used in this study. Inclusion and exclusion criteria were identified in detail in the collection and selection of the literature. Several checklists were used to ensure the accuracy of reporting literature. Effect sizes were explored using forest plots and publication bias were examined using funnel plots and Egger Bias statistics. Statistical validity of the final meta regression model was assessed by using appropriate model assumption testing.

Terms, Definitions, and Relevant issues

This section is devoted to terms which are going to be examined further in the literature review chapter. These terms include acculturation, psychological and cultural level of acculturation strategies, cultural distance, types of acculturation measures, adjustment, psychological adjustment, sociocultural adjustment, academic adjustment, immigrant youth and generations. Terms have been defined, and definitions are italicized for convenience reading. Moreover, definitions are supported with related information, and relevant issues are
presented from the literature such as testability and usefulness of Berry’s model which constitutes the rationale of this study.

Acculturation

Research on acculturation is increasing rapidly (Ward & Kus, 2012). A brief search of the PsycInfo literature database for journal articles with the word acculturation in the title returned 107 records from the 1980s, 337 from the 1990s, and 727 from the 2000s (Schwartz, Unger, Zamboanga, & Szapocznik, 2010). Sixteen years later, the same database search leads to a number of 12,022 records (PscyInfo, 2016). In fact, many of these research studies are based on or partially based on Berry’s (1980) model due to its seminal nature. As defined by Berry (2005), acculturation is the dual process of cultural and psychological change that takes place as a result of contact between two or more cultural groups and their individual members.

Berry’s earliest work on acculturation concentrated on the nature of marginality and the distinction of assimilation and integration with Australian aboriginals during the seventies. Since that time, Berry has made many changes to his framework; during the 1980s he came up with the terms assimilation, integration, rejection and deculturation. However, with his latest refinements, separation and marginalization came to replace rejection and deculturation, and with the latest framework, two acculturation issues and four strategies appeared (Ward & Kus, 2012).

Berry’s model focuses on how immigrants changed following their entry and settlement into receiving societies, and how ethnocultural groups relate to each other and
change as a result of their attempts to live together in culturally plural societies. This change represents the mutual or reciprocal nature of acculturation (Berry, 2005).

According to Berry (2005), not all groups and individuals undergo acculturation in the same way; there are large variations in how people seek to engage the process. These variations are called acculturation strategies. Berry (2005) introduced psychological and cultural level of acculturation strategies as follows.

**Psychological acculturation strategies.** (Also called individual acculturation strategies) These strategies involve what people try to do during their acculturation. *These strategies include assimilation, separation, integration and marginalization. When individuals do not wish to maintain their cultural identity and seek daily interaction with other cultures, the “assimilation” strategy occurs. In contrast, when individuals place value on holding on to their original culture, and at the same time wish to avoid interaction with others, the “separation” strategy is the choice. When there is an interest in both maintaining one’s heritage culture while in daily interactions with other groups, “integration” is the option. “Marginalization” happens when there is little possibility or interest in heritage cultural maintenance, and little interest in having relations with others in the dominant culture.*

**Cultural level of acculturation strategies.** At the cultural level, the two groups that are in contact usually have some initial notions about what they are attempting to do (e.g., colonial policies, or motivations for migration) or what is being done to them during the contact. These notions involve preferences or goals within the new culture. Changes are
likely to occur in the two cultures following contact, and both groups exhibit attitudes toward these changes; they may desire them, or reject them. These strategies are melting pot, segregation, exclusion and multiculturalism. When “assimilation” is pursued by the dominant acculturating group, it is termed the “melting pot”. When the dominant group forces separation, it is called “segregation”. When dominant group imposes marginalization, it is called “exclusion”. When diversity is a recognized feature of the society as a whole, including all the various ethnocultural groups, it is called “multiculturalism”.

**Cultural distance.** Triandis (1997) defined cultural distance as the change in adaptation to the new culture. People easily adapt to cultures that are relatively similar to their own, and have much difficulty adapting to cultures where the language, religion, or the standard of living is different.

**Measures of acculturation.** As acculturation knowledge grows, conceptualization of acculturation measures has been changed over time due to changing and expanding knowledge and perspectives on acculturation phenomenon (Yoon et al., 2013). At first, the acculturation concept was coined as a unidimensional model by Robert Park (1928), and it is expected that individuals either stick to their heritage roots, called separation in Berry’s model, or lose their origins and totally become a foreigner, called assimilation in Berry’s model, and all members of a minority culture acculturate on a straight line segment starting with separation and ending with assimilation (Fox, Merz, Solorzano, & Roesch, 2013). No other views have been recognized at the time. However, increasing knowledge on the other
hand shows us that acculturation is not a unilinear experience. In contrast, it is a multidimensional, complex, and a bilinear experience, as explained in Berry’s two-dimensional acculturation framework (Fox et al., 2013; Ward & Kus, 2012). People may choose or experience various acculturation patterns. For instance, individuals can acculturate either into the host culture without losing their roots or enculturate into the heritage culture with a great sense of host cultural values (Miller, 2010).

Unilinear, unidimensional and bipolar measures lack in distinguishing host and heritage cultural orientations (Nguyen & von Eye, 2002; Yoon et al., 2013). They usually ask one question per construct, and, based on the answer, the respondent’s acculturation profile is somewhere between separation and assimilation. Whereas high scores indicate separation or assimilation, middle scores describe marginalization and biculturalism. Thus, the inevitable consequence of inaccurate measuring turns out to be confounding results (Nguyen & Benet-Martinez, 2007, 2013). For instance, the well known Suinn-Lew Asian Self-Identity Acculturation Scale (SL-ASIA; Suinn, Ahuna, & Khoo, 1992) has been created to measure acculturation profiles of Asian Americans, and has an item to assess the network of the individual via: “whom do you now associate with in the community?”. The respondent can select one of the five choices as an answer. For example, respondents may pick “Mostly Asians, Asian-Americans, Orientals”. However this may not indicate that the respondent is separated from the host culture. The respondent may mostly associate with Asians due to the current situation (e.g., job loss and living in an Asian neighborhood), but may be well adjusted in an American community as well if the conditions are met. Furthermore, another
point of view to this example suggested by Nguyen and Benet-Martinez (2007) is that both assimilated and bicultural individuals may pick the answer “About equally Asian groups and Anglo groups”. Bicultural individuals may have many contacts from both cultures, whereas marginalized individuals may not have equal connections in both cultures due to their lack of socializations. As seen clearly in this example, unilinar measures lack sufficient information to assess individuals’ acculturation patterns, and presents confounding results.

On the other hand, bilinear measures provide more in-depth information regarding individual’s acculturation patterns for both heritage and host cultures. Two separate items usually measure the same construct for host and heritage cultural orientations. For instance, the Abbreviated Multidimensional Acculturation Scale (AMSA; Zea, Asner-Self, Birman & Buki, 2003) includes items such as “I think of myself as being U.S. American”, and “I think of myself as being a member of my culture of origin;” and respondents need to answer by picking one of the following choices; strongly agree, agree somewhat, disagree somewhat, and strongly disagree (see Zea et al., 2003, for the entire list of items in AMSA).

Besides bilinear measures, typological measures are also accounted as a type of bidimensional measure (Kang, 2006). The only difference between bilinear and typological measures is that typological measures assess four acculturation patterns in Berry’s model separately (Nguyen & Benet-Martinez, 2013). Typological measures still underline the two dimensions of acculturation (host cultural orientation and heritage cultural orientation) and provides merit information about the acculturation pattern of an individual, however, having
psychometric flaws in assessment may result in invalid outcomes (Kang, 2006; Rudmin, 2009).

**Testability of Berry’s model.** The testability of Berry’s model is supported by many qualitative and quantitative studies. Research examining acculturation attitudes of Turkish-Dutch adults by Arends-Tóth, van de Vijver, and Poortinga (2006) indicated that, while attitudes and behaviors are both underlying components of a unitary construct of acculturation, they are not interchangeable. Although, based on this research, integration is often held as an ideal, it may be difficult to achieve for a number of reasons. The researchers predicted that the proportion of immigrants classified as integrated will be greater when “ideal” attitudinal preferences, rather than “real” self-reported behaviors, are used as the underlying dimensions.

Berry and Sabatier (2011) examined the conceptualizing and operationalizing of acculturation and whether these variations in classifying ways of acculturation lead to different relationships with immigrants’ psychological wellbeing. A one-way analysis of variance was then conducted on the basis of each of the classification systems to compare self-esteem in integrated, separated, assimilated, and marginalized youth from Montreal and Paris. The findings revealed that acculturating strategies vary among youth immigrants, despite these variations, and youth who engaged both cultures adapted better that those who engaged one, the other, or neither culture.

The validity of marginalization as an approach to acculturation has been questioned by many researchers. According to Berry (2006), the marginalization approach may be
possible only for small segment of migrants who reject both their heritage and receiving cultures. However, Schwatrz et al. (2010) stated that many researchers using empirically based clustering methods have found small or nonexistent marginalization groups, and scales used to measure marginalization typically have poor reliability and validity compared with scales for the other categories.

There are limited tools for measuring acculturation based on Berry’s model. Matsudaira’s (2006) review of acculturation measures, which identified 51 acculturation scales published between 1978 and 2004, cited only one instrument that captured the essence of Berry’s dimensions. The Acculturation Strategies Scale: An earlier work of Donà and Berry (1994) was modified by Kosic, Kruglanski, Pierro, and Mannetti (2004). The modified scale consists of 13 items tapping two dimensions assumed to underlie acculturation strategies. The items are rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Kosic et al. (2004) reported Cronbach’s alphas for Maintenance of Home culture and for Preference for Relationships with the host group were .81 and .84, respectively.

According to Berry (2005), a complete understanding of acculturation would need to start with a comprehensive examination of the societal context. Cultural characteristics that accompany individuals into the acculturation process need description for a better comparison with the society of settlement. The gathering of this information requires extensive ethnographic, community-level work. Identifying the changes that occurred during
acculturation requires sampling a population and studying various individuals in the acculturation process.

Berry’s model has two dimension, and four acculturation strategies. The question is whether the model has any empirical basis. Support for the existence of these two basic dimensions has been provided by a number of recent studies (Ward & Kus, 2010). Berry, Phinney, Sam, and Vedder (2006) studied over 5,000 immigrant youth who had settled in 13 different countries and assessed a number of concepts such as attitudes toward acculturation strategies. Four distinct acculturation profiles emerged from a cluster analysis of all of these attitudinal and behavioral data.

**Usefulness of Berry’s model.** Berry’s model’s usefulness for conceptualizing the possible outcomes of acculturation is powerful, because the theory considers the unique aspects of the individual and the culture to be the salient determinants of the effect of acculturation. Not only does it consider the outcomes, but the model may also move towards creating solutions for helping individuals deal with these changes in their new lives. Schwartz et al. (2010), stated that Berry’s model may help to understand how migrants of color are challenged with, and adapt to, their new status as minority group members; and this may lead to creating new intervention techniques.

**Adjustment**

As stated above acculturation is a crucial psychological element affecting an enormous number of people from all over the world (Nguyen & Benet-Martinez, 2013). *Adjustment is a natural outcome of acculturation (Berry, 2003).* In his early work, Berry and
his colleagues (1987) proposed that each acculturation strategy yields to different levels of adjustment difficulties. For instance, integration strategy results in a smoother adjustment phase, whereas marginalization accompanies a rough adjustment period for the individual. A later study also supported their early work; integration strategy was positively correlated with adjustment in a sample of 5,000 immigrant youth who have settled in 13 different countries (Berry et al., 2006). Furthermore, authors of a later meta-analysis on biculturalism and adjustment relationship concluded that integration strategy, in other words biculturalism, was associated with a better adjustment (Nguyen & Benet-Martinez, 2013).

Ward and colleagues (1999) have suggested that cross-cultural adaptation may be divided into two interrelated domains (psychological and sociocultural) by emphasizing the importance of distinguishing these two (Ward & Kennedy, 1999). Psychological and sociocultural adjustment are still the two commonly studied variables in the acculturation literature despite the fact that it was an old suggestion made by Ward and colleagues (Hirai, Frazier & Syed, 2015; Nguyen & Benet-Martinez, 2013; Ozer, 2015; Swami, Arteche, Chamorro-Premuzic, & Furnham, 2010; Wang & Mallinckrodt, 2006). While psychological adjustment refers to well-being and mental health, sociocultural adjustment refers to behavioral competence and cultural learning for an active and effective life in a new culture (Ward, Bochner, & Furnham, 2001).

In addition to these two domains, academic adjustment is also presented in the present study. Due to the population’s age in this meta-analysis, a large proportion of the sample consists of students who are under academic stress and going through psychological and
sociocultural adjustments naturally as well. Academic adjustment is recognized by many researchers in the acculturation literature and studied as one of the major domains of adjustment (Wang & Hannes, 2014).

**Psychological adjustment.** Psychological adjustment refers to psychological and emotional well-being (Wang & Mallinckrodt, 2006). Mental states such as depression, anxiety, tension, self-esteem, and satisfaction with life, etc. are usually assessed to define psychological adjustment, in addition to personality, life changes coping styles, and social support predict psychological adjustment (Ataca & Berry, 2002; Ozer, 2015). In the literature, acculturation is not one of the direct predictors of adjustment. For instance, a hierarchical regression analysis found a substantial relationship between personality and psychological adjustment among Hispanic students, whereas no significant effect has been determined due to acculturation strategies (Ahadi & Puente-Diaz, 2011). When individuals experience difficulties due to migration, acculturative stress arises (Williams & Berry, 1991), and this stress has shown to predict depressive symptoms and correspondingly psychological adjustment (Jackson, Ray, & Bybell, 2013; Williams & Berry, 1991). Scholars found that acculturative stress on Latino college students predicted higher levels of psychological distress (Rodriguez, Myers, Morris, & Cardoza, 2000). Self-esteem is another important predictor of psychological adjustment, such that a converse relationship between self-esteem and depressive symptoms was found by many scholarly work (Jackson, Ray, & Bybell, 2013).
**Sociocultural adjustment.** Sociocultural adjustment is defined by cultural learning and acquisition of skills. To fit in the host culture, individuals need to perform culturally appropriate skills and acquire behavioral competence (Wang & Mallinckrodt, 2006). Some factors affecting sociocultural adjustment are length of stay in the host country, contact level and quality with host nationals, language fluency, and cultural distance (Ward & Kennedy, 1999).

**Academic adjustment.** School environment generally relates to the host culture (Schachner, Noack, & van de Vijver, 2014), therefore, academic adjustment directly makes an impact on acculturation outcomes of individuals (Wang & Hannes, 2014). Language efficiency is commonly examined as one of the strong predictors of academic adjustment in the literature (Schachner et al., 2014; Wang & Hannes, 2014). Besides individual’s own efforts and perceptions about school that affect academic adjustment, research findings suggest that parental involvement, such as parents’ acuity about school and their child’s school experience, also relates to student’s academic achievement (Fulligni, 1997; Gniewosz & Noack, 2012).

**Immigrant Youth**

*There is a lack of clear definition of ‘youth’ in the literature, and no legal definition has been established yet (Global Migration Group, 2014; Salehi, 2010). The draft strategic plan for federal collaboration defines youth as individuals under age of 25, and includes early adolescence (under 14), middle adolescence (15-17), late adolescence and early adulthood (18-24) in defining youth (Interagency Working Group on Youth Programs, 2013).*
The United Nations, for statistical purposes, defines ‘youth’, as individuals between the ages of 15 and 24 years (United Nations Department of Economic and Social Affairs [UNDESA], 2013). Other sources define youth between the ages of 15 and 24 years and, even though there is a lack of consistency on defining youth globally, some studies include participants aged between 15 and 24 if they are examining the immigrant youth populations worldwide (Salehi, 2010). Several organizations (e.g., Calgary Catholic Immigration Society in Canada [CCIS]) assisting immigrant youth preset an eligibility criterion of age, and welcomes youth between 15-24 ages (CCIS, 2015).

Taking all these definitions into account, and considering the developmental stages of humans; including studies with children aged 15 to 24 seems most appropriate for the present study. Due to the limited research studies on acculturation and adjustment including youth samples, studies examining acculturation and adjustment relationships among youth if the mean age was lower than 25, and above than 15 were included in the meta-analysis.

Immigrant youth represented about one-eighth (28.2 million) of the 232 million international migrants globally in 2013 (Global Migration Group, 2014). The U.S. seems to be the home for most immigrant youth when compared to the global immigration statistics. For instance, it is projected that more than 30% of youth will be raised in immigrant families by 2040 (Suárez-Orozco, Suárez-Orozco, & Todorova 2009). Generational status is used as an indicator of acculturation by many researchers (Ahadi & Puente-Díaz, 2011; Crockett et al., 2007; Schachner et al., 2014). Generational differences among immigrant youth yields to diverse findings in the literature (Aretakis, Ceballo, & Camacho, 2015). Therefore,
generational differences and the effects on acculturation-adjustment relationship was addressed in the present study as well.

**Definitions of generations.** The first generation are those children born outside of the host country and represents the oldest immigrant youth group. The second generation includes children who were born in the host country and whose parents were immigrants. The third generation consists of youth who were born in the host country and whose parents were also born in the host country (Aretakis, Ceballo, & Camacho, 2015; Passel, 2011).

**Conclusion**

Although several meta-analytic studies have examined the relationship between acculturation and adjustment (i.e., Gupta, Leong, Valentine, & Canada, 2013; Moyerman & Forman, 1992; Nguyen & Benet-Martínez, 2013; Rogler, Cortes, and & Malgady, 1991; Yoon, Langrehr, & Ong, 2011), none of them have focused on a specific population such as immigrant youth, examined the academic adjustment patterns, nor looked at the moderating effects of generational status. The significance of the relationship between acculturation and adjustment among immigrant youth has not been described clearly in the literature. Therefore, a resilient meta-analysis is needed to investigate the acculturation-adjustment pattern among immigrant youth, and address the conflicting findings in the literature.
CHAPTER 2 – LITERATURE REVIEW

This chapter is devoted to findings relevant to acculturation and adjustment relationship, and previous meta analyses. Rigorous research studies are reviewed, and their outcomes are examined and discussed in a harmony to layout the acculturation-adjustment relationship through a clear and concise systematic approach. Relationship patterns among acculturation and psychological, sociocultural and academic adjustment domains are presented separately. Furthermore, prior meta-analyses on acculturation and adjustment relationship have been reviewed in detail in order to have a robust foundation for the current study.

Acculturation and Psychological Adjustment

Immigrant youth experience an adjustment process just like any migrant who is unfamiliar to the new country’s culture and the lifestyle. This adjustment process includes psychological, sociocultural and academic adjustment; and may be accompany by problems, challenges and difficulties. Ahadi and Puente-Diaz (2011) discovered that adjustment problems do not arise based on acculturation strategies, however these problems arise due to the various experiences of the individual in the new country. For instance, many immigrant youths have high expectations about their future lives in the U.S., and come to the country with unrealistic hopes. Unfortunately, when those expectations are not met, they experience, disappointment, depression, anger, and culture shock (Yeh, 2003).

The study by Berry and Sabatier (2011) examined the conceptualizing and operationalizing of acculturation and whether these variations has different effects on
immigrants’ psychological wellbeing among youth from Montreal and Paris. Findings show that acculturating strategies vary among immigrant youth. Despite these variations, youth who engage both cultures adapt better than those who engage one, the other, or neither culture. In contrast, Yeh’s (2003) findings supported that more American identifying Asian youths report fewer mental health symptoms than Asian Americans who are more Asian identifying. Benner and Kim (2009) observed a totally different acculturation-adjustment pattern in their longitudinal study among 444 Chinese American adolescents. Chinese American adolescents who were more oriented to American culture exposed to more discrimination, which severely affected their developmental outcomes.

Lorenza-Blanco and colleagues (2016) conducted a study on 1,919 high school students to investigate how various community experiences such as perceived discrimination, bullying, perceived school safety and social support effect their everyday lives. All 9th graders took the survey, and repeated for another two consecutive years. Findings suggested that youth experiencing the highest perceived discrimination were excessively male and least oriented to both U.S. and Latino/a culture. On the other hand, victims of bullying were mostly female but did not differ by acculturation (Lorenzo-Blanco et al., 2016). This study corroborates the conflicting findings among the literature, and does not fully support the idea that immigrant youth, who equally acculturate into host and home culture, would have better health outcomes.

In a study examining the association between acculturative stress and psychological functioning among Mexican American college students, it was found that high acculturative
stress was associated with high levels of depressive symptoms. Their findings also revealed that active coping has a negative relation with depression, whereas avoidant coping has a positive association (Crockett et al., 2007).

Religion may be another predictor of psychological adjustment, for instance Ward (2013) demonstrated the protective outcomes of religiosity which leads to a better adjustment on all psychological, sociocultural and academic domains among young Muslim immigrants in New Zealand.

**Acculturation and Sociocultural Adjustment**

Sociocultural adjustment is conceptually different than psychological adjustment. Whereas psychological adjustment refers to wellbeing and mental health, sociocultural adjustment is usually defined by behavioral and cognitive aspects of culture learning and fitting (Ward et al., 2001). A large bulk of research examining sociocultural adjustment patterns of immigrant youths primarily looked at their academic adjustment patterns specifically school success and/or language proficiency (Ouarasse & van de Vijver, 2005; Ozer, 2015; Schachner et al., 2014) that are strong predictors of sociocultural adjustment. Nevertheless, academic performance and/or language proficiency solely cannot explain the entire sociocultural experience of an immigrant. In the availability of resources, sociocultural adjustment is explored, but academic performance has not been recognized as a predictor of sociocultural adjustment in this section. In the next section, the phenomenon of acculturation and academic adjustment will be investigated in depth.
Zlobina, Basabe, Paez, and Furnham (2006) examined the sociocultural adjustment patterns of 518 first-generation immigrants in Spain, and tested if nominated predictors are universal. Among their literature search, length of residence in a new culture, higher education, income, quality and quantity of relations with hosts, gender, cultural distance, and discrimination were some robust predictors of sociocultural adjustment. Correlation study revealed that longer length of residence in the new culture, being a legal immigrant, having more contacts with host nationals, having less contacts with conationals, being a female, and perceiving smaller cultural distance were found to be significant predictors of better sociocultural adjustment. Length of residence, immigration status and perceived discrimination were also found to be universal predictors as being independent or semi-independent of the context and culture (Zlobina et al., 2006).

Another study examining sociocultural adjustment experiences of 319 sojourning undergraduate students in Britain showed that students with higher family income, higher English proficiency, more contact with host nationals, lower perceived cultural distance, and lower perceived discrimination experienced a better sociocultural adjustment (Swami, Arteche, Chamorro-Premuzic, & Furnham, 2010). Furthermore, Swami and colleagues (2010) argued that higher income may be the reason of more contact with host and co-nationals, improved English proficiency, and less perceived cultural differences due to the availability of resources. In contrast to Zlobina and colleagues’ study (2006), more contact with co-nationals was found to be a predictor for a greater sociocultural adjustment in this path analysis due to the social-support provided by the co-nationals in the host country.
More contacts with co-nationals may also result in a less stressful adjustment experience (Carr, Koyama, & Thiagarajan, 2003) for many immigrant youths who have strong connections with their heritage culture. For instance, Poyrazli and Grahame (2007) suggested a peer network program within co-national or co-cultural students to create a supportive relationship in order to exchange information about transportation, housing, and other relative issues in a college setting.

Besides those factors effecting sociocultural adjustment stated above, various research studies showed that personal characteristics and individual identities of immigrant youth may bring more complexity into the adjustment process. For instance, it is argued that experiences of immigrant youth may not solely depend on their acculturation, however sociocultural conditions such as socioeconomic status, sexual orientations, body shapes and gender discriminations may also play an important role (Romero, Edwards, Bauman, & Ritter, 2014).

**Acculturation and Academic Adjustment**

Many school aged immigrant youths go through difficult stages in early stages such as living in a different culture, learning a new language, adjusting to a new lifestyle, gaining new study skills needed for different curriculum, etc. While these tasks seem exciting, they need an enormous amount of energy, effort, and strong psychological support from family members, teachers, and friends. When the necessary mental support is not present, the student may not handle the adjustment process at ease. Therefore, this process may affect almost every stage of the student’s life.
Learning a new culture including language is a very difficult task for many people. Especially language is a predictor of constructing friendships and learning networks. Recent immigrant student youths who are new to the country are in the process of transitioning and understanding the American lifestyle. Placing them in a classroom filled with native English speakers may be a tremendously intimidating task to take on. On the other hand Daoud (2003) proposed that immigrant students who are segregated in the schools’ English Language Development (ELD) programs had little opportunity to interact with their native peers, which prevents forming friendships with native students. Yeh (2003) suggested that immigrant youths who can communicate in English may have more comfortable interactions, and may perform better academically.

Bremer and Merry (2013) stated that English language learners face challenges putting them at risk for a variety of mental health issues including academic failure, drop out, and limited social and postsecondary mobility. Furthermore, many of these students are on visa. In some cases, immigration statuses may be challenging, and these governmental issues may place a high level of pressure on them.

Students’ academic experiences differ by acculturation (Lorenzo-Blanco et al., 2016). Unlike adult migrants, immigrant youth are also faced with additional difficulties, which they may encounter in their school such as pressure to learn and achieve in a new language, problems in adopting a new curriculum and a new teaching style, and difficulties in forming friendships (Yeh, 2003). Moreover, youth may additionally feel a cultural distance from school due to their family’s background, socioeconomic status, or parental restrictions, which
arise from ethnic cultural norms (Kiang, Supple, Stein, & Gonzalez, 2012). In turn, this may lead to conflict in the family as they acculturate faster than their parents (Crockett et al., 2007; Yeh, 2003).

Literature supports that a positive school climate promotes better grades, improved wellbeing and healthy development (Lorenzo-Blanco et al., 2016). Youth who are positively connected to their schools report higher academic goals, expectations and motivation (Kiang et al., 2012). A study examining the academic adjustment patterns among Asian American youth discovered higher educational goals and motivation among Asian American girls compare to boys. Additionally, a link between high perceptions of discrimination and low educational goals and expectations was found, suggesting that perceptions of ethnic bias may limit academic achievement (Kiang et al., 2012). Immigrant youth who cannot develop a positive school climate due to their own acculturation profiles, and negative experiences in the school may encounter with various psychological problems. Some of these problems stated in the literature includes low self-esteem, isolation, aggression, fatigue, anxiety, withdrawal, and intergenerational conflicts (Yeh, 2003).

Literature presents conflicting findings regarding educational outcomes of immigrant youth. For instance, Aretakis and colleagues (2015) examined acculturation-academic adjustment paradox among 212 Latino adolescents by examining their school efforts and educational values. The regression analyses revealed that first generation students did value education more and reported better school effort than their later generation peers. Moreover, first generation students and second generation students with two immigrant parents showed
better educational values and school effort than second generation adolescents with only one immigrant parent. In contrast to these findings, biculturalism, integration strategy in Berry’s acculturation model, is favored by many researchers in regard to its effects on better adjustment outcomes (Berry, Phinney, Sam, & Vedder, 2006; Neto, 2010; Nguyen & Benet-Martínez, 2013). As expected, bicultural individuals usually report better language efficiency on acculturation scales, consequently better language competence yielding better grades, greater academic outcomes, and a healthier academic adjustment experience among immigrant youth. Moreover, bicultural individuals have greater levels of integrative complexity than their assimilated and separated counterparts (Tadmor, Tetlock, & Peng, 2009). Integration of multiple perspectives due to multiple stimulus of various sources may result in increased problem-solving skills, which may lead to increased reasoning, better grades, better test results, and consequently a superior academic adjustment experience among bicultural individuals.

Religion serves as a mediator in the acculturation and adjustment relationship (Goforth, Oka, Leong, & Denis, 2014; Ward, 2013). It is expected that immigrants with Christian identity may have less struggles than their non-Christian counterparts in a country if the majority is Christian, moreover they may have a smoother adjustment experience in their new settings due to the cultural distance phenomenon (Amer & Hovey, 2005; Ward, 2013). In contrast to expectations, Ward (2013) stated that Muslim identity predicts better school adjustment and fewer behavioral problems. For instance in his study, Muslim students who were strongly connected to Islam showed better academic adjustment and behaviors in
New Zealand, a mainly Christian nation. On the other hand, Muslim students who have strong connections with Islam experienced less perceived discrimination, and less acculturative stress as well (Goforth et al., 2014). Perceiving support from God, practicing the faith, being a part of a religious group, and the regulating effects of Islam on social life has been listed in the literature as the factors which may lead to a better adjustment experience (Goforth et al., 2014; Ward, 2013).

**Prior Meta-Analyses on Acculturation and Adjustment**

Meta-analytic efforts on acculturation and adjustment relationship have been an interest for many scholars. First meta-analytic study on the subject was done in 1991 with available literature at the time, and the last one was conducted in 2013 to the researcher’s knowledge. Increased number of research studies on the subject, and the improved methodological approaches with advanced technology yield to more robust meta-analyses and significant findings over time. Several meta-analytic studies are reviewed; their purposes, research designs, outcomes and limitations have been presented in order to set up a superior methodological approach, and a flawless research study.

**Rogler, Cortes, and Malgady (1991)**

These researchers focused their study on the effects of acculturation on the mental health of Hispanic immigrants. The researchers advocated that a new direction in research is needed as the current viewpoint was not conducive to advances in this field. Thirty research studies, dealing with mental health status of Hispanic persons, were analyzed. Only articles dealing with acculturation, Hispanics and mental health were included in this study.
Although the researchers did possibly not locate all the studies on this topic, they concluded that the articles were representative.

The researchers reported on the meta-analysis in a theoretical descriptive manner, arguing observations from a theoretical viewpoint. The sample collected was so diverse that per analysis topic, only one or two samples could be identified for discussion. Attempting to tabulate the effect sizes of four categories of mental health status, it was found that there was a pervasive lack of uniformity and that the use and reporting of statistical methods differed such that any attempt to integrate the statistics rendered meaningless results. Instead, the researchers conducted a manual search for specific topics and used descriptive analysis coupled with theoretical insights.

The initial argument was that the lack of culture specific viewpoints and measurement that render the ethnic culture at a disadvantage as they are evaluated from an “Americanness” point of view. The assumption that gains towards acculturation necessitates losses of the heritage culture was also found insufficient and called for new perspectives. Measurement scales of health issues also suffered from cultural bias and therefore did not accurately identify the mental health status of the immigrant (Hispanics in this case). Individual ethnic subgroup differences had to be considered, as Hispanics are made up of various and culturally different groups. A call for appropriate measurements for acculturation and mental health was voiced. Only when the individual ethnic differences are accounted for in measurement scales can adequate comparisons be made to determine links between acculturation and mental health.
In the case of Hispanics with pertinent sex role differences regarding alcohol use for instance, gender should be accounted for in studies of acculturation, adjustment and mental health issues. It has become evident that increased acculturation brought higher alcohol consumption amongst females. Studies mainly focused on acculturation as an exogenous force, but the review highlighted the endogenous nature thereof. The researchers called for new perspectives to include this finding in future research, especially in the field of mental health and acculturation. Successful use of the host culture language (English in this case) was highlighted as pivotal to acculturation.

**Moyerman and Forman (1992)**

The authors studied the relationship between acculturation and different forms of adjustment as research findings show differences by conducting a meta-analysis to synthesize the different fields. Eleven separate analyses were conducted—extroversion, self-esteem, locus of control, career, addiction, affective disorder, field dependence, family conflict, anxiety/stress, intelligence, and psychosocial/health. Clustered homogeneous groupings were created as the groups were heterogeneous. Due to the lack of decisive results on the relationship between acculturation and adjustment the authors adopted a hypothesis generating model for this study.

Studies eligible for analysis were selected on the grounds of an appropriate acculturation measure used, the use and reporting of statistical methods. A total of 49 reports were selected, providing 60 samples that were divided into eleven acculturation-adjustment classes. As a particular sample may fit into more than one class, a total of 111 samples were
generated. A homogeneity statistic was computed for all classes to check for consistency among the different studies. In correcting for publication bias, the authors applied the maximum likelihood estimator for all the classes. Subsequently a regression model was applied to all classes to determine class contribution. Procedures to detect outliers were applied to identify miss-specified examples for the understanding of regression calculations. As the data for acculturation-adjustment were all situation specific, it limited the authors’ ability to generalize about the directional relationship.

The nature of the data limited the ability to draw definite generalizations about the directional association between acculturation and different kinds of adjustment. After correcting for reporting bias, the noteworthy correlations in each class were substantially reduced. Acculturation and extroversion/self-disclosure displayed an inconclusive relationship and indications of a minimal loss of internal locus of control as the individual Westernizes. Positive relationships were recorded for (a) acculturation and self-esteem ($z^+ = .278, p < .01$), older non-Hispanic ($\beta = -.350, p < .05$) and/or lower SES ($\beta = -.401, p < .05$) exhibited the biggest increase, (b) age ($\beta = .15, p < .05$) and SES ($\beta = .432, p < .05$) seemed to exert important influences on the relationship between acculturation and career conflict, (c) non-psychiatric patients ($\beta = -.21, p < .05$) and those with low SES ($\beta = -.204, p < .05$) were more likely to report addictive disorders with acculturation, (d) a weak positive relationship was determined between acculturation and affective/impulse control disorders ($z^+ = .079, p < .01$) and none of the selected variables moderated this correlation, (e) field independence was highly connected with increasing Western acculturation with lower SES
groups exhibiting more pronounced increases in this field, (f) a weak positive association was found between acculturation and anxiety/stress disorders, (g) lower SES individuals exhibited a more positive relationship between acculturation and intelligence/achievement ($\beta = -0.096, p < 0.05$), (h) big variations were reported in the field of psychosocial health problems, homogeneous grouping $A(Q[13] = 17.24, n.s., z^+ = 0.123, p < 0.01)$.

Limitations inherent to this study included the small sample sizes obtained for each field after controlling for publication bias. The small sample size could result in spurious findings and cautions should be taken when applying these results.

**Yoon, Langrehr and Ong (2011)**

A content analysis stretching over 22 years (1988 – 2009) that included empirical research studies covering acculturation or enculturation as variable was conducted. A systematic analysis of 138 studies contained in 134 articles was undertaken on literature in counseling and counseling psychology using acculturation as a study variable. The researchers conducted a meta-analysis on the association between acculturation/enculturation and key elements such as mental health, adjustment and wellbeing. An initial classification system to analyze the content of the studies was developed and further expanded while reviewing the research.

Only four of the total 138 studies incorporated social contexts of acculturation/enculturation in the design, exploring the influence of historically Black as opposed to White campus settings on enculturation levels, interaction between acculturation strategies and different social situation, and acculturation levels. Apart from a few cases (8.1%) that
combined different racial groups or did not indicate the ethnic groups, the majority of studies involved Latino/as (30.4%) or Asians/Asian Americans (51.4%). Mexican Americans were found to be studied the most frequently and more than half of the samples were enlisted from college campuses (56.5%). The measures most frequently used include the SL-ASIA, the Asian Values Scale (AVS), and the Acculturation Rating Scale for Mexican-Americans-II (ARSMA-II). Content areas covered in the studies included; (a) attitude to help seeking, perceived trustworthiness and competence of counselors, (b) mental health, adjustment and self-esteem, (c) career or educational development, (d) acculturation, (e) health (e.g., diabetes, cancer, etc.), and (f) development of acculturation scales. Changes in publications and research trends reflected a number of published articles fluctuations and a decline in the use of unilinear measures with an associated increase in the use of bilinear measures and enculturation focused measures.

The wide range of content fields and variables made it impossible to perform meta-analyses for all the acculturation/enculturation variables. The analyses were limited to the association between acculturation/enculturation and mental health, adjustment and wellbeing. Twenty-nine studies were reviewed and a multitude of variables were analyzed. Random effects models were used to make inferences about the population of a study within and between studies.

Although researchers paid attention to different aspects of acculturation/enculturation indications of how the aspects are related to one another have not yet been addressed. There is a gap between the theoretical advances and empirical research. Acculturation is an
evolving process by means of the interactions of people and surrounding systems and not a static situation or inherent traits, only a couple studies covered the dynamic nature of acculturation. The sample strategy brought too many samples on the one hand, and incomprehensive samples on the other to conduct meta-analyses on all the samples. This brought about a low power due to the small usable sample size and the findings should only be seen as statistical synthesis of the studies. Interpretation of findings of a small nonrepresentative sample is misleading.

The limitations of this study include the classification system used was a reflection of the researchers’ biases and future researchers could develop classification systems based on theoretical insights. A cultural bias might be present as the researchers are Asian Americans and the majority of the studies represent Latino/as. Sorting publications only on the grounds of counseling proved to be problematic and the study could not include all research done on acculturation/enculturation and counseling psychology. The study therefore displayed a sampling bias. Furthermore, the inclusion of quantitative studies only excluded the valuable contribution of qualitative studies as they did not fit into the quantitative framework.

**Gupta, Leong, Valentine, and Canada (2013)**

Gupta et al. (2013) addressed the relationship between acculturation and depression amongst Asian Americans in North America. The authors performed a quantitative meta-analysis of 38 published studies to synthesize the contrasting data regarding depression and acculturation in Asian Americans. The authors hypothesized that high American culture orientation and high Asian culture orientation will be associated with less depression.
The two-dimensional model of acculturation—Asian Self-Identity Acculturation Scale (SL-ASIA)—developed by Suinn-Lew, based on the model of Berry, was used as the theoretical framework of the study. Gupta et al. (2013) selected studies that used the SL-ASIA and had depression as an outcome for their literature review.

Inclusion criteria for studies were (a) quantitative, (b) used Asian Americans, (c) who live in North America, and (d) assessed acculturation. Thirty-eight studies were finally selected and codified. The random effect model was chosen for the study due to the variability in the measures of the studies used.

Findings of U.S. or Asian culture orientation indicated that only a few studies demonstrated statistically significant effect sizes as the majority effect sizes were clustered around the mean. A small statistically significant negative association was demonstrated between the level of acculturation and depression scores, thus accepting the hypothesis. The correlation between U.S. culture orientation and Asian culture orientation indicated a small statistically significant negative correlation between acculturation and depression, suggesting that orientation toward any culture cushioned negative health outcomes of depression. Separate analysis of the ethnic subgroups was not supported by the sample sizes. When the 13 studies using multi-ethnic group samples and the 20 that used single ethnic group samples were compared, the groups were not statistically different from each other. The indication was that, when immigrants shift toward higher congruence with the dominant culture, less depression is experienced. The effects of contextual factors on acculturation and depression could not be assessed as the studies reviewed did not always report sample features (SES,
immigration status, etc.). The SL-ASIA scale measures were compared with the studies using other acculturation measures. Thirteen studies used the SL-ASIA scale to measure orientation toward U.S. and 20 studies used different acculturation measures. The measures were not statistically different from each other and therefore it seems that the scale type does not matter.

The authors performed thorough follow-up analyses for; (a) influential studies that might strongly influence the results, and (b) potential publication and in some cases repeated the procedure to rule out the possibility of influential studies and publication bias. Neither follow-up analyses revealed any significant differences.

The studies under consideration addressed either U.S. culture orientation or Asia culture orientation and only nine studies explored both. According to the meta-analysis there is a significant, but small, negative relationship between the level of acculturation and measures of depression—thus a higher level of acculturation is associated with less depression. A statistically not significant negative relation was observed with loyalty towards the Asian culture, indicating that orientation toward a culture is positive, cushioning the person against poor health outcomes. The study highlighted the complexity of the acculturation process and from the meta-analysis one can state that there is a relationship between acculturation and depression, the relationship is however more complex than previously thought. Accurate and meaningful data for meta-analyses could be achieved by; (a) researchers using bidimensional models, (b) developing and using scales for depression that are specifically developed for Asian Americans and utilizing a correct definition of
acculturation, (c) a consistent manner to measure and report on contextual factors and using contextual factors more extensively in research to explain results in a meaningful manner, and (d) cease to define acculturation as congruence of cultures as it strengthens existing cultural typecasts and singles out those who do not fit the typecast groupings.

**Nguyen and Benet-Martínez (2013)**

In another study done in 2013, the authors conducted a meta-analysis on 83 studies to determine the impact of biculturalism on the adjustment of individuals. The aim of Nguyen and Benet-Marínez (2013) was to merge the varying findings in acculturation studies by means of a meta-analysis of literature on biculturalism-adjustment. A random-effects approach was used to determine the association between biculturalism and adjustment. Bilinear or multidimensional models of acculturation (Berry, 1980) suggested that people could either; (a) display a dominant culture orientation (host culture orientation), or (b) display a heritage culture orientation (ethnic culture orientation). The authors added a third adjustment protocol—health-related adjustment focuses on somatic symptoms such as low levels of headache and back pain, high levels of physical activity, and good eating habits.

Only published studies where the dominant and heritage cultures were clearly stated were considered for inclusion. Furthermore, only studies that used statistical analysis and described the correlation between acculturation and adjustment were included. The studies were grouped according to topic studied and statistical method used. Fifty-two studies measured the association between biculturalism and psychological adjustment, 51 studies
focused on biculturalism and sociocultural adjustment and a further 18 studies focused on health-related adjustment.

The effect size $r$ for the 83 (of 141) that addressed biculturalism-adjustment relationship only ranged from $-0.78$ to $0.87$, with a mean of $0.51$. Therefore a strong association between biculturalism and positive adjustment was found—the more bicultural participants are, the better adjusted they tend to be and vice versa. The biculturalism-adjustment relationship was significantly stronger than the relationship between separate cultural orientation and adjustment, $r_{alerting}(166) = 0.92$, $p < .0001$. Bicultural persons therefore tend to be better adjusted than those individuals with an orientation to one culture only. Biculturalism-adjustment when measured bilinearly, was significantly stronger $r_{alerting}(81) = 0.81$, $p < .0001$. Contrast analyses of the biculturalism-adjustment link yielded null results, $t(101) = -0.46$, $p = .32$, for the psychological area. The results indicated that there was a significantly stronger relationship between psychological and sociocultural fields compared to the health-related field. The biculturalism-adjustment relationship was stronger when participants lived in the U.S. ($\lambda = +1$) compared to other counties ($-1$). Finally, the Pearson product-moment correlations indicated that mean age, percentage of female participants, or percentage participants born outside the host country did not have a significant relationship with the strength of biculturalism.

The researchers stated confidently that there is a strong, significant, and positive relationship between biculturalism and adjustment. Limitations of the study include the possibility that not all studies on the topic were identified by the literature search and that not
all studies on biculturalism are published, therefore the mean effect sizes of the study may be inflated. As meta-analyses utilize studies as the entity of analyses, the limitations of each study translate into the limitations of the meta-analysis. The limitations of the meta-analysis could be addressed by future research that assesses the generalization of the findings with other samples and countries. Determining whether biculturalism-adjustment is causal or not and the direction thereof. Other research methods than survey and correlational studies should be embarked on and longitudinal studies should be undertaken. As a large percentage of acculturating persons are bicultural, it is essential that this population be understood better.

**Conclusion**

It is difficult to come to any definitive conclusions based on the meta-analytic data available to date. Though effect sizes of the later studies support the relationship between acculturation and mental health, this relationship is much more complex than researchers initially thought. Heterogeneity describes differences in effect sizes across studies, while publication bias reflects the tendency for studies with larger effect sizes to reach publication and studies with smaller effect sizes to go unpublished (Gupta, Leong, Valentine, & Canada, 2013). The general consensus about meta-analytic research on acculturation and mental health is that more scientific rigor is needed in the form of longitudinal studies.

To sum up, immigrant youth are faced with various difficulties and challenges in their new settings, and construct an adjustment mechanism based on their experiences, environments and personal characteristics. Each individual adjusts uniquely. When cultural, environmental, and personal differences are taken into account, it is meaningful to say that
adjustment mechanisms have a complex and an erratic nature. Therefore, innovative research designs are needed in order to account for ethnical differences in measurements applied and environmental influences on selected participants, and for reporting on specific variables such as, age, socioeconomic status, personal characteristics, generation, level of acculturation, and adjustment domain to allow for comparison across studies. In this regard, and in the availability of the current literature, the following comprehensive questions were addressed deeply in the present study: Is it possible to lay out the confounding results from previous studies on acculturation and adjustment relationship in a meaningful way, resulting in a concise and cogent explanation with such a compound statistical method? Will the outcome of the present meta-analysis differ from results of previous meta-analyses because the immigrant youth samples in the present study differs from those in previous meta-analyses? Can acculturation and adjustment relationships be effected by the way acculturation is measured, the adjustment type, culture of origin, generational status, and sample characteristics such as host country, race, age, and gender of immigrant youths stated in the selected research studies?
CHAPTER 3: METHOD

Rates of international migration are increasing worldwide and it is expected that nearly 20% of all U.S. nationals will be foreign born in 2060 (Colby & Ortman, 2015). Many of these immigrants come from backgrounds with cultural values differing from those of their new homes, and, as such, cultural gaps have emerged between many migrants and their receiving societies (Schwartz, Unger, Zamboanga & Szapocznik, 2010). Adjustment is the outcome of acculturation, a process of cultural and psychological change that takes place as the result of contact between two or more cultural groups (Berry 2005).

Although the adjustment and acculturation process has been explored in previous research, no meta-analytical research has focused specifically on immigrant youth. Immigrant youth represented about one-eighth (28.2 million) of the 232 million international migrants globally in 2013 (Global Migration Group, 2014) and are a substantial portion of the immigrant population that has been neglected in data synthesizing research.

The purpose of this study was to explore the relationship between acculturation and adjustment in immigrant youth, while also exploring and controlling for the confounding effects of acculturation type (unilinearly, bilinearly, or typologically), adjustment type (psychological, sociocultural, or academic), culture of origin, generational status, host culture and other sampling characteristics. This was done by conducting a meta-analysis of currently peer-reviewed studies which were identified using key word searches of databases and manual searches of citations of discovered literature. The statistical analyses included meta-regression techniques, with appropriate assumption and bias checking.
This chapter presents the general information about the nature of a meta-analysis first, then it delivers comprehensive information about instrumentation that guides the selection and presentation of results, the inclusion and exclusion criteria of literature, operationalization of variables, data collection and planned statistical techniques.

**Meta-Analysis**

Meta-analysis is a statistical method of systematically combining quantitative study data across multiple studies (Moher et al. 2014). Traditional study methods focus on statistical significance testing and are highly dependent on sample size and other factors. Meta-analysis instead shifts the focus to exploring the direction and magnitude of an effect across studies (Lipsey & Wilson 2001). The technique was first used to statistically aggregate psychotherapy findings in 1978 and was built upon the statistical methods developed by Cochran (1953) used to average means across multiple independent studies.

Compared to traditional studies, meta-analysis uses the effect size of a study as the dependent variable. Any standardized index of an effect size can be used as long as it is comparable across studies, represent magnitude and direction of a relationship and is independent of sample size (Lipsey & Wilson 2001). Multiple studies then become replications, with key differences between studies considered independent variables which are controlled statistically during the meta-analysis process (Lipsey & Wilson 2001).

As the replications come from independent studies, the process of selecting studies is complex and comparability of studies is often subjective. As such, meta-analysis studies must make clear inclusion and exclusion criteria that ensure the comparability of all studies.
Biases, out of the control of the researcher may affect the selection process, most notably publication bias where significant studies are more likely to be published than non-significant studies. Additionally, analysis of study differences in fundamentally correlational rather than causal, although they may serve to guide future research (Lipsey & Wilson 2001). Practically, meta-analysis may be time consuming during the study identification process.

Despite these pitfalls of the meta-analysis process, a well-designed meta-analysis provides substantial advantages over qualitative synthesis approaches. Meta-analysis is capable of finding relationships across studies that are obscured in other approaches, or vulnerable to over-interpretation without the discipline of quantitative approaches. Additionally, it is capable of synthesizing large numbers of studies that would overwhelm traditional literature review approaches of review (Lipsey & Wilson 2001). Based on these advantages, meta-analysis was the chosen technique of this systematic review study.

**Research Questions**

The key research questions that guided this study are:

1. How and to what degree is acculturation related to adjustment among immigrant youth?

2. Is the acculturation-adjustment relationship moderated by factors such as how acculturation is measured (unilinearly, bilinearly, or typologically), adjustment domain (psychological, sociocultural, or academic), culture of origin, generational status, host culture, age, and gender?
Research Design

Population and Sample

There was no sample population because this study was a meta-analysis of existing literature. Additionally, there are no procedures for recruitment and participation for subjects. There are procedures for selection of articles included in this meta-analysis and they are detailed in following sections.

Instrumentation

Although this study did not use any instruments directly for measure of study variables, two instruments were used through the analysis to guide collection and selection of literature, and reporting of results. The PRISMA checklist is the first instrument that was used in this analysis (Liberati et al., 2009). The PRISMA checklist was published in 2009 and designed to improve on the reporting of systematic reviews and meta-analyses published in the literature (Panic et al. 2013). Although the checklist does not directly relate to the collection and study of variables, the PRISMA checklist was used to guide the reporting of this meta-analysis.

Adherence to the PRISMA checklist has been shown to increase both the quality of reporting and methodological quality in journals that require adherence to the PRISMA checklist (Panic et al., 2013). PRISMA was chosen due to its uptake as a reporting requirement by many journals (Panic et al., 2013) and it is a more modern guideline than the older quality of reporting of meta-analyses (QUOROM), which was published in 1996 (Moher et al., 1996).
In addition, the strengthening of the reporting of observational studies in epidemiology (STROBE) checklist (The PLOS Medicine Editors, 2014) was used for assessing the methodological quality of studies considered for inclusion in this meta-analysis. The STROBE checklist was designed during a two-day workshop of methodologists, research, and journal editors as a list of requirements a study should include to ensure the accurate and complete reporting of an observational design (von Elm et al., 2014). The STROBE checklist is appropriate, as immigration cannot be experimentally controlled and all studies included in this analysis used an observational design. The STROBE checklist contains 22 items that relate to title, abstract, introduction, methods, results and discussion sections of journal articles (Von Elm et al., 2014). No other instrumentation was used.

Data Collection

The sample of this meta-analysis was all studies selected for inclusion in this meta-analysis. Studies were selected from the literature via a keyword search from PsychINFO, using the keywords acculturat*, adjustment, and adaptation. The main electronic search was utilized with keywords by using ‘AND’ and ‘OR’ conjunctions by typing “Acculturat* AND (adjustment OR adaptation)”. In addition to this approach, manual searches were done through the reference lists of published articles and review papers identified by the keyword search. Unpublished studies, and studies published by non-peer reviewed sources were excluded. Study selection was based on criteria regarding study population, nature of the intervention or in this case nature of the cultural move for participants, outcome measurement, time period, cultural and linguistic range and methodological quality (Meline,
Assessment and selection of studies were conducted by the researcher, and a helper was recruited to double check assessment of studies. Figure 1 presents an overview of the selection process.

**Inclusion criteria.**

- **Study population:** Study population is composed of immigrant youth. For the purpose of this analysis, youth was defined as participants between the ages of 15-24. Studies were included if they have a mean age of participants below 24 years of age. Studies must clearly state the mean age of all participants, the count of participants of both genders and state an origin culture, host culture, and generational status which must be the same for all participants.

- **Nature of the intervention:** The intervention in this analysis is the immigration of participants from one culture to another and is not experimentally manipulated by the studies. As such, all studies in this analysis used an observational design. The study stated a clear host and origin culture which was the same for all included participants.

- **Outcome measurement:** The outcome measure in this analysis was the correlation between acculturation and adjustment measure, and must be statistically measured as $r$. If other measurements were used or reported, which can be used to calculate $r$ (such as $t$ tests or $F$ tests), these were used to calculate the $r$ that was used for this meta-analysis.

- **Time period:** The study must have taken place within the last 15 years to ensure generalizability to current immigrant populations.
• Cultural and linguistic range: Only studies published in English were considered due to difficulties in translating other languages.

• Methodological quality: The methodological quality of each study was reviewed using the STROBE checklist (The PLOS Medicine Editors, 2014) and given a rating of ‘good’ for meeting greater than 95% of the checklist points, ‘fair’ for greater than 80% of the checklist points and ‘bad’ for meeting less than 80% of the checklist points. All studies that meet the criteria of ‘good’ were included in this analysis, if this results in less than 15 studies identified, studies which meet the criteria of ‘fair’ were also included.

• Other: The study clearly stated the definition of the acculturation measure (unilineal, bilinear, or typological), or it was possible to infer the acculturation measure from the survey instruments of the study. The study clearly stated the domain of the adjustment measure (psychological, sociocultural, or academic), or it was possible to infer the adjustment domain from the survey instruments of the study. Study tools used had been previously validated and used in prior literature or had been validated in that study. Validation requires presentation of evidence for reliability (Cronbach’s alpha, test-retest correlation, etc.) and validity (correlation with other similar measures, etc.).

**Exclusion criteria.**

• Study population: Population has a mean age greater than 24 years of age, or the mean age is not documented in the study. Studies which include participants with multiple host or origin cultures, or are from multiple generations, were also excluded.
• Nature of the intervention: If the study includes subjects that come from multiple host or origin cultures.

• Outcome measurement: Outcome measurement is anything other than the correlation between acculturation and adjustment.

• Time period: A study that is older than 15 years.

• Methodological quality: The methodological quality does not meet the STROBE guidelines.

• Other: Study tools have not been previously validated, or the nature of the acculturation measure and adjustment domain is ambiguous.

Data were extracted from each of the studies chosen for final inclusion in this meta-analysis independently by the researcher.
Variable Definitions

The dependent variable for this study was the relationship between acculturation and adjustment measured as a correlation coefficient $r$.

The potential effect modifier variables considered in this analysis are how acculturation is measured, adjustment domain, culture of origin, generational status and selected sample characteristics. These variables are defined as follows:

Figure 1. Flowchart of selection and coding procedures (Moher et al. 2009).
Variable 1: Acculturation measure. Acculturation measure was defined as one of three categories; unilinear, bilinear, or typological. This acculturation measure type was clearly stated in the study or it was possible to infer this from the study.

Variable 2: Adjustment domain. Adjustment domain was defined as one of three categories; psychological, sociocultural, or academic. This adjustment domain was clearly stated in the study or it was possible to infer this from the study.

Variable 3: Culture of origin. Culture of origin refers to the origin culture of the immigrant population of the study. The study had one origin culture and one host culture for all participants, which is clearly defined. Cultures were grouped into categorical variables with an appropriate number of categories after all the data were collected.

Variable 4: Generational status. Generational status refers to whether the participants were first generation, second generation or third generation. The population of the study contained only one generational grouping (or separate analyses for each generation), which was clearly stated in the study.

Variable 5: Host culture. Host culture refers to the culture of the host country. The study had one host culture, which was clearly defined. Host cultures were grouped into categorical variables with an appropriate number of categories after all the data were collected.

Variable 6: Age. Age refers to the mean age of the participants in the study and was clearly stated in the study. Mean age was measured as a continuous variable.
Variable 7: Gender. Gender refers to the gender ratio of the study, specifically the percentage of males in the study population. Gender ratio was calculated from the counts of participants of each gender. If only a small number of studies report total counts of participants of each gender, this variable may be dropped from the analysis.

Variable 8: Weighting. Studies were weighted during data analysis. Studies reporting multiple $r$ values were used in the analysis. Each $r$ was weighted at $1/\text{number of } r$’s contributed by the study. Therefore, each overall study had an equal weight of 1.00.

Data Analysis

Data analysis was undertaken using SPSS Version 23 (IBM Corp, 2014). Initially, the summary information on the studies included in the analysis were presented, including year of publication, study design, study population (host culture and origin culture), information on the acculturation measure and adjustment domain measured, total number of participants, mean age, percentage male, and generational status of the participants.

The data were then entered into a Microsoft Excel spreadsheet for each study with all the appropriate variables included. The weights were also calculated for each study. This data was saved, and used in SPSS for statistical analysis.

Next, information was presented about the relationship between acculturation and adjustment to answer the first research question of this analysis. A summary correlation coefficient was calculated using a random effects model following the methods in Hedges and Olkin (1985). A graphical summary of correlation coefficients was presented using a
forest plot that shows the correlation coefficients of each study, their 95% confidence interval and the pooled correlation coefficient with associated 95% confidence intervals.

Subsequently, the bias in publications included in the analysis was explored graphically using a funnel plot. Publication bias occurs when statistically significant results are more likely to be published and cited (Jüni et al., 2002). For a further, and more formal examination, bias was also assessed statistically using Egger’s test (Egger et al., 1997).

Finally, meta-analysis using a random effects model was used to determine the confounding effects of the other variables assessed in this analysis, including acculturation type, adjustment domain, mean age, gender, origin culture, and host culture. Meta-regression using a random effects model was used following the methods outlined in Hedges and Olkin (1985).

Effects sizes and significance determined which of the variables have a significant effect of intervention success and what the nature of that effect is. This was used to answer the second part of the research questions of this analysis. Appropriate model assumption testing took place including assessment of residuals using normal Q-Q plots, outliers via Cook’s D, and heterogeneity via the square of the estimated heterogeneity, Cochran’s Q test and $I^2$.

**Threats to Validity**

Given that this was a meta-analysis, limitations may occur in the controversial summarization of large amounts of information needed to conduct the study (Walker,
Hernandez, & Kattan, 2008). Walker et al. (2008) identified several problems that plague meta-analyses. They are publication bias, search bias, and selection bias.

Publication bias refers to the issue where results that are statistically significant are more likely to be published than non-significant results (Jüni et al., 2002). Publication bias in this analysis was assessed during the results phase, and assessments of its effect on this analysis were made in the results and discussion sections of this dissertation.

Search bias refers to biases in finding studies based on keywords and databases used in the analysis (Walker et al., 2008). Search bias in this analysis was minimized by using multiple keywords, and also manually searching the references of identified papers to check for publications that might not have been identified using the keyword searches.

Selection bias refers to biases present in the selection of papers to be included in a study (Walker et al., 2008). In this analysis, a clear list of inclusion and exclusion criteria were provided, covering a variety of areas, including reporting of outcome variables, populations studied, and rigorousness of the methodological reporting of the study. This ensures that results of this analysis are not only repeatable by a third party, but data quality and validity of this study’s results are improved.

As an additional aspect, statistical validity of the chosen statistical methods was considered. Relevant assumption checking was conducted throughout the study to ensure the validity of statistical results.
Ethical Procedures

There were no anticipated ethical concerns for this analysis. All data that were collected and used in this study is already publically available through peer-reviewed journals.

Conclusion

The purpose of this meta-analysis was to explore the impact of acculturation of adjustment in immigrant youth, while also considering the confounding effects on the relationship from type of acculturation measure, type of adjustment, culture of origin, generational status and other variables. Appropriate literature from peer-reviewed sources were located using the inclusion checklist documented in this chapter which considered aspects of methodological design and reporting of outcome variables. An overall outcome variable of the relationship between acculturation and adjustment, measured as the correlation coefficient $r$, was calculated using meta-analysis techniques and the effects of the other variables on the relationship were explored using meta-regression techniques. Appropriate checking for assumptions and bias was conducted throughout the analysis.

Results of the analysis were presented in Chapter four.
CHAPTER 4: RESULTS

Chapter 4 presents numbers of studies screened and assessed for eligibility, characteristics for which data were extracted, and the data on risk of bias of each study. For all outcomes considered, the researcher illustrated (a) simple summary data for each intervention group, and (b) effect estimates and confidence intervals, ideally with a forest plot. Finally, Chapter 4 presents results of each meta-analysis done, including confidence intervals and measures of consistency and results of any assessment of risk of bias across studies.

Study Selection

A search of PsycINFO database for “acculturation” and “adjustment or adaptation” in peer-reviewed journals yielded 176 studies. All articles were screened based on their abstracts. 90 studies were downloaded in full text for a further examination if they met the inclusion and exclusion criteria. Seventy-two additional articles were identified through reference lists of published articles and review papers identified by the keyword search. A total of 162 studies were screened in full-text. Fifteen studies met all the inclusion and exclusion criteria, and included in the meta-analysis, whereas 147 studies were excluded from the analysis. Fifteen studies meeting the inclusion and exclusion criteria was assessed by STROBE checklist to ensure the methodological quality of studies. All of the studies included in the meta-analysis also met 85% and more of STROBE checklist guidelines. The majority of studies that were excluded from the current meta-analysis due to the absence of examination of generational status in the analysis (n=40) (e.g., Kunst & Sam, 2013)
examining the relationship between perceived acculturation and adaptation among Muslim minority youth). Thirty-eight additional studies didn’t meet the study population mean age; either mean age was above 24 \((n=25)\) (e.g., Cemalcilar, & Falbo, 2008 examining the adaptation of international students), or mean age was below 15 \((n=13)\) (e.g. Oppedal, Roysamb, & Sam, 2004 testing the effect of acculturation and social support on change in mental health among young immigrants). Seventeen studies failed to measure acculturation, and three studies didn’t measure adjustment. Nine studies included multiple culture of origins without performing separate analysis for each culture of origin (e.g., Reynolds, & Constantine, 2007 working on the cultural adjustment difficulties and career development of international college students). Nine studies failed to provide adequate data to compute \(r\).

One study didn’t provide participants age. Five studies were published before 2002. Six studies worked on unrelated topics. Five studies failed to measure more than one variables. The remaining excluded studies were composed of two meta-analyses, seven qualitative studies, two conceptual articles, and two reviews. Finally, one study was excluded due to having a specific population (e.g., Sirikantrapor, 2013 examining the resilience and bicultural level of acculturation among Southeast Asian youth who have witnessed domestic violence).
Figure 2. Flowchart of selection procedures

176 records identified through database searching

Records screened based on abstracts, and 90 studies screened in full text

86 studies excluded

162 full-text articles screened for eligibility

15 studies included in meta-analysis

147 studies excluded with following reasons:
• 2 Meta-analysis
• 1 Specific population
• 9 Insufficient data to compute r
• 7 Qualitative studies
• 2 Conceptual articles
• 1 Participants’ age not defined
• 5 Studies published before 2002
• 25 Mean age is above 24
• 13 Mean age is below 15
• 40 Generational status not examined
• 3 Adjustment not measured
• 17 Acculturation not measured
• 6 Unrelated topics
• 9 Multiple culture of origins
• 2 Reviews
• 5 Several missing variables

72 additional studies identified through other sources

176 records identified through database searching
Study Characteristics

In this section, the researcher presented characteristics for which data were extracted (e.g., study size). In most of studies, data for two or more rs were presented as an index of the relationship between acculturation and adjustment among immigrant youth. In some studies, acculturation and adjustment were measured using more than one scale and more than one dimension of acculturation, or more than one type of adjustment. Therefore, two or more rs were presented per study.

The researcher selected 15 studies. However, Stoessel’s (2012) study consisted of two separate studies, which resulted in 16 studies. The 16 studies yielded a total number of 629 rs.

The 16 studies (166 rs) on acculturation can be divided into one study (3 rs) that measured acculturation unilinearly and 15 studies (163 rs) that measured acculturation bilinearly. There were five studies on the relationship between acculturation and academic adjustment; twelve studies on the relationship between acculturation and psychological adjustment; and lastly eleven studies on the relationship between acculturation and sociocultural adjustment.

Results of Individual Studies

The summary information on each study included in the analysis was presented including year of publication, study design, study population (host culture and origin culture), information on the acculturation measure and adjustment domain measured, total
number of subjects, mean age, percentage male, and generational status of the subjects (See table 1).

The total number of participants in included studies was 4051. Fourteen studies were correlational designs, whereas two studies performed a casual comparative design. All of the studies included in the analysis measured acculturation with a bilinear measure except Yeh (2003) which used the Suinn–Lew Asian American Self-Identity Acculturation Scale, a well-known and commonly used unilinear measure among Asian groups (For more detailed information about acculturation scales used in included studies please see Appendix A).


Ouarasse and van de Vijver (2005) selected 2nd generation Moroccans in the Netherlands. Perreira et al. (2010) selected 1st generation Latino Youth in the United States (for more detailed information about characteristics of included studies in the meta-analysis please see Appendix D).
Table 1

*Characteristics of studies included in Meta-analysis*

<table>
<thead>
<tr>
<th>Year of Publication</th>
<th>Study Design</th>
<th>Total Number of Participants</th>
<th>Acculturation Measure Type</th>
<th>Adjustment Domain</th>
<th>Culture of Origin</th>
<th>Generation Status</th>
<th>Host Culture</th>
<th>Mean Age</th>
<th>Percentage Male</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aguayo*</td>
<td>2011</td>
<td>Correlational</td>
<td>408</td>
<td>Bilinear</td>
<td>Academic</td>
<td>Hispanic</td>
<td>Mixed America</td>
<td>20.24</td>
<td>42.00</td>
<td>.04</td>
</tr>
<tr>
<td>Cano</td>
<td>2010</td>
<td>Correlational</td>
<td>214</td>
<td>Bilinear</td>
<td>Psychological</td>
<td>Hispanic</td>
<td>Mixed America</td>
<td>23.18</td>
<td>-</td>
<td>.14</td>
</tr>
<tr>
<td>Dimitrova</td>
<td>2015</td>
<td>Causal Comparative</td>
<td>344</td>
<td>Bilinear</td>
<td>Psychological</td>
<td>Turkish (Muslim)</td>
<td>Mixed Bugaria Germany</td>
<td>15.96</td>
<td>53.00</td>
<td>.13</td>
</tr>
<tr>
<td>Du</td>
<td>2015</td>
<td>Correlational</td>
<td>213</td>
<td>Bilinear</td>
<td>Psychological</td>
<td>Asian</td>
<td>1st America</td>
<td>23.09</td>
<td>57.00</td>
<td>.02</td>
</tr>
<tr>
<td>Juang</td>
<td>2009</td>
<td>Correlational</td>
<td>309</td>
<td>Bilinear</td>
<td>Psychological</td>
<td>Asian</td>
<td>Mixed America</td>
<td>15.00</td>
<td>46.00</td>
<td>.05</td>
</tr>
<tr>
<td>Kashima</td>
<td>2006</td>
<td>Correlational</td>
<td>100</td>
<td>Bilinear</td>
<td>Psychological</td>
<td>Asian</td>
<td>1st Australia</td>
<td>23.5</td>
<td>33.00</td>
<td>.34</td>
</tr>
<tr>
<td>Kiang</td>
<td>2013</td>
<td>Correlational</td>
<td>177</td>
<td>Bilinear</td>
<td>Academic</td>
<td>Psychological</td>
<td>1st Mixed America</td>
<td>25.00</td>
<td>-</td>
<td>.22</td>
</tr>
<tr>
<td>Meghani</td>
<td>2016</td>
<td>Causal Comparative</td>
<td>114</td>
<td>Bilinear</td>
<td>Academic</td>
<td>Psychological</td>
<td>1st America</td>
<td>24.10</td>
<td>66.00</td>
<td>.29</td>
</tr>
</tbody>
</table>
Table 1  
*Continued*

<table>
<thead>
<tr>
<th>Study</th>
<th>Year</th>
<th>Design</th>
<th>Method</th>
<th>Language</th>
<th>Ethnicity</th>
<th>Grade</th>
<th>University</th>
<th>Mean Age</th>
<th>SD</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ojeda</strong></td>
<td>2016</td>
<td>Correlational</td>
<td>Bilinear</td>
<td>Psychological</td>
<td>Hispanic</td>
<td>Mixed</td>
<td>America</td>
<td>20.64</td>
<td>100.00</td>
<td>.04</td>
</tr>
<tr>
<td><strong>Ouarasse</strong></td>
<td>2005</td>
<td>Correlational</td>
<td>Bilinear</td>
<td>Psychological</td>
<td>Moroccan (Muslim)</td>
<td>2nd</td>
<td>Netherlands</td>
<td>21.68</td>
<td>54.00</td>
<td>.13</td>
</tr>
<tr>
<td><strong>Perreira</strong></td>
<td>2010</td>
<td>Correlational</td>
<td>Bilinear</td>
<td>Academic</td>
<td>Hispanic</td>
<td>1st</td>
<td>America</td>
<td>15.00</td>
<td>47.00</td>
<td>.19</td>
</tr>
<tr>
<td><strong>Stoessel Study 1</strong></td>
<td>2012</td>
<td>Correlational</td>
<td>Bilinear</td>
<td>Sociocultural</td>
<td>Ethnic German (Russian)</td>
<td>1st</td>
<td>Germany</td>
<td>16.00</td>
<td>41.00</td>
<td>.39</td>
</tr>
<tr>
<td><strong>Stoessel Study 2</strong></td>
<td>2012</td>
<td>Correlational</td>
<td>Bilinear</td>
<td>Sociocultural</td>
<td>Russian (Jewish)</td>
<td>1st</td>
<td>Israel</td>
<td>15.60</td>
<td>55.00</td>
<td>.36</td>
</tr>
<tr>
<td><strong>Wu</strong></td>
<td>2012</td>
<td>Correlational</td>
<td>Bilinear</td>
<td>Psychological</td>
<td>Asian</td>
<td>1st</td>
<td>America</td>
<td>18.90</td>
<td>40.40</td>
<td>.35</td>
</tr>
<tr>
<td><strong>Yeh</strong></td>
<td>2003</td>
<td>Correlational</td>
<td>Unilinear</td>
<td>Psychological</td>
<td>Asian</td>
<td>1st</td>
<td>America</td>
<td>15.88</td>
<td>47.00</td>
<td>.12</td>
</tr>
<tr>
<td><strong>Yoon</strong></td>
<td>2012</td>
<td>Correlational</td>
<td>Bilinear</td>
<td>Psychological</td>
<td>Asian</td>
<td>1st</td>
<td>America</td>
<td>24.99</td>
<td>53.00</td>
<td>.26</td>
</tr>
</tbody>
</table>

*a Only first authors have been stated  
*b Mean age for Kiang (2013) is not stated in the article. However, participants are 9th and 10th graders, yielding an approximate mean age of equal or above 15.
Risk of Bias Within Studies

In this section, the researcher presented data on risk of bias of each study. The bias in individual studies included in the analysis was explored graphically using a funnel plot. In summary if there is no bias, the plot must appear symmetrical as a funnel shape; if there is bias, the plot must appear asymmetrical, which means the more asymmetrical the plot appears, the more there is bias (Higgins & Green, 2011). In order to assess the bias in individual studies, the effect estimates were plotted on the x axis, and the measure of the sample size on the y axis on the funnel plot.

The results of funnel plots were as follows, Aguayo, Herman, Ojeda, and Flores (2011); Du and Wei (2015); Juang and Cookston (2009); Kashima and Loh (2006); Stoessel, Titzmann, and Silbereisen (2012)\(^b\) and Wu’s (2012) studies produced an asymmetrical plot. Therefore, there was risk of bias in those individual studies. On the other hand, the plots in remaining 10 studies appeared symmetrical which meant there was no risk of bias (Cano & Castillo (2012); Dimitrova et al. (2015); Kiang, Witkow & Champagne (2013); Meghani & Harvey (2016); Ojeda, Piña-Watson & Gonzalez (2015); Ouarasse & van de Vijver (2005); Perreira, Fuligni & Potochnick (2010); Stoessel, Titzmann, and Silbereisen (2012)\(^a\); Yeh (2013)). Funnel plots of each individual study is demonstrated in following figures.
Figure 3. Aguayo et al.’s (2011) Study.

Figure 4. Cano and Castillo’s (2012) Study
Figure 5. Dimitrova et al.'s (2012) Study

Figure 6. Du and Wei’s (2015) Study
Figure 7. Juang and Cookston’s (2009) Study

Figure 8. Kashima and Loh’s (2006) Study
Figure 9. Kiang et al. (2013)’s Study

Figure 10. Meghani and Harvey’s (2016) Study
Figure 11. Ojeda et al.’s (2015) Study

Figure 12. Ouarasse and van de Vijver’s (2005) Study
Figure 13. Perreira, Fuligni, and Potochnick’s (2010) Study

Figure 14. Stoessel et al.’s (2012) First Study
Figure 15. Stoessel et al.’s (2012) Second Study

Figure 16. Wu’s (2012) Study
Figure 17. Yeh’s (2013) Study

Figure 18. Yoon’s (2012) Study
Risk of Bias Across Studies

The bias across studies included in the analysis was explored graphically using a funnel plot. Typically, studies with smaller sample sizes produce less precise estimated effects. As sample size increases, the precision of the estimated effect increases. Therefore, it is expected that studies with higher effect estimates will be plotted near the average, and studies with lower effect estimates will be plotted on both sides of average, resulting in a funnel shape on the plot (Sedgwick, 2013). As stated, if there is no bias, the plot must appear symmetrical; if there is bias, the plot must appear asymmetrical, which means the more asymmetrical the plot appears, the more there is bias (Higgins & Green, 2011). In the study, the funnel plot appeared asymmetrical (see figure 19), indicating there was bias across studies included in the analysis. However, interpretation of a funnel plot is very subjective, and can mislead the researcher by its shape. Therefore, a more formal test, Egger statistics, was utilized to have stronger results about bias across studies. The null hypothesis for Egger’s test was that symmetry exists in the funnel plot when P value is not significant. The P value for Egger’s test in this study was 0.092, so there was no evidence to reject the null hypothesis, and it can be concluded that symmetry existed in the funnel plot. Even though previous funnel plot produced an asymmetrical looking outcome (Figure 19); Egger’s test did not indicate significant bias across studies (Egger’s test P=.092) (Table 2).
Table 2

_Egger’s test_

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>Std. Error</th>
<th>t</th>
<th>Sig.</th>
<th>95.0% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slope</td>
<td>.068</td>
<td>.066</td>
<td>1.026</td>
<td>.322</td>
</tr>
<tr>
<td>Bias</td>
<td>.066</td>
<td>.036</td>
<td>1.807</td>
<td>.092</td>
</tr>
</tbody>
</table>

_Synthesis of Results_

In this section, the researcher presented results of each meta-analysis done, including confidence intervals. In addition, the researcher presented normal Q-Q plots, heterogeneity, and a Cook’s Distance value of more than .1.
Assumptions

Model assumption testing was utilized by several statistical techniques including assessment of residuals using normal Q-Q plots, outliers using Cook’s D, and heterogeneity using the square of the estimated heterogeneity, Cochran’s Q test and $I^2$.

Normal Distribution. The researcher assessed residuals using a commonly used normal quantile–quantile (Q-Q) plots (Wilk & Gnanadesikan, 1968). Q-Q plots help to assess the validity of normal distribution of a data set (Loy, Follett & Hofmann, 2016). The observations on the plot resemble with the line, confirming that the data are normally distributed (see figures 20 and 21).

Heterogeneity. Heterogeneity is variability in the intervention effects in the studies (Leedey & Ormrod, 2016). The researcher performed Cochran's Q test to measure heterogeneity (Cochran, 1954). The Cochran’s Q statistic examines the null hypothesis that there are no significant differences in effect size estimates among studies. If the p-value is less than .05, there is a problem with heterogeneity. In the study, the p-value was .660 (p >.05), consequently there was no problem with heterogeneity.
In order to further examine the null hypothesis, \( I^2 \) was computed. The \( I^2 \) statistic measures the total variation that results from sampling error in order to examine the null hypothesis that there are no differences in effect sizes. An \( I^2 \) is calculated with the formula of, \( I^2 = 100 \times (Q - df)/Q \), where \(<25\% = \) low heterogeneity, \( \geq 50\% = \) moderate heterogeneity, or high \( \geq 75\% \) heterogeneity (Higgins et al., 2003). Results of the \( I^2 \) statistic indicated that overall heterogeneity was not significant \( I^2 = 22.56\% \) (\( Q = 19.37, df = 15, p^* < .001 \)), suggesting that there were no differences between studies supporting the null hypothesis.

**Outliers using Cook’s D.** An outlier is referred to as an observation point distant from other observations (Cooper & Schindler, 2014). A Cook’s Distance value of more than 1 indicates a value that has a negative impact on the regression model. In the study, the Cook’s distance was .01. Thus, there was no influential outlier, meaning that there was no observation point distant from other observations. In other words, none of the subjects was negatively effecting the regression model.

![Figure 20. Normal Q-Q Plot of Acculturation.](image-url)
Hypothesis Testing

Research Question 1. How and to what degree is acculturation related to adjustment among immigrant youth?

Data analysis was undertaken using SPSS 23 (IBM Corp., 2014). Information was presented about the relationship between acculturation and adjustment to answer the first research question. A summary of correlation coefficients and their 95% confidence interval was calculated using a random effects model following the methods in Hedges and Olkin (1985). Effect size $r_s$ for the 16 studies examining the relationship between acculturation and adjustment ranged from -.24 to .66, with a mean of .16 (95% confidence interval from .13 to .18, $p<.05$) (See table 3). This suggests that acculturation is correlated with adjustment. Thus, participants who were acculturated were likely to be adjusted. In addition, participants who were adjusted are likely to be acculturated. 95% confidence intervals of study result are
shown in a forest plot (Figure 22). Moreover, a graphical summary of correlation coefficients was presented using a scatter plot (Figure 23).

**Figure 22. Forest Plot**

Horizontal line on the forest plot represents the 95% confidence intervals of the study result. The vertical axis is the line of null effect. The vertical line is placed at the value where an exposure is not associated with an outcome. Any study line which crosses the line of null effect does not illustrate a statistically significant result.

**Figure 23. Scatter Plot**
Table 3

*Summary of the Meta-Analysis on the Association Between Acculturation and Adjustment.*

<table>
<thead>
<tr>
<th>Measure type</th>
<th>Acculturation</th>
<th>Adjusted Mean</th>
<th>Adjusted Median</th>
<th>Adjusted Minimum</th>
<th>Adjusted Maximum</th>
<th>Random Effect:</th>
<th>Unweighted CI (95%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unilinear</td>
<td>Bilinear</td>
<td>Academic</td>
<td>Psychological</td>
<td>Sociocultural</td>
<td>Unweighted</td>
<td>[0.13, 0.18]</td>
</tr>
<tr>
<td>Unweighted</td>
<td>.16</td>
<td>.00</td>
<td>.16</td>
<td>.01</td>
<td>.06</td>
<td>.00</td>
<td>[0.00, 0.18]</td>
</tr>
<tr>
<td>Median</td>
<td>.13</td>
<td>.00</td>
<td>.13</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
<td>[0.00, 0.13]</td>
</tr>
<tr>
<td>Minimum</td>
<td>-0.24</td>
<td>.00</td>
<td>-0.24</td>
<td>.00</td>
<td>-0.25</td>
<td>-0.25</td>
<td>[-0.46, 0.00]</td>
</tr>
<tr>
<td>Maximum</td>
<td>.66</td>
<td>.20</td>
<td>.66</td>
<td>.31</td>
<td>.47</td>
<td>.66</td>
<td>[0.00, 0.47]</td>
</tr>
<tr>
<td>Weighted</td>
<td>.02</td>
<td>.00</td>
<td>.02</td>
<td>.01</td>
<td>.06</td>
<td>.09</td>
<td>[0.00, 0.02]</td>
</tr>
<tr>
<td>Median</td>
<td>.27</td>
<td>.00</td>
<td>.27</td>
<td>.01</td>
<td>.06</td>
<td>.09</td>
<td>[0.00, 0.27]</td>
</tr>
<tr>
<td>Minimum</td>
<td>-0.24</td>
<td>.00</td>
<td>-0.24</td>
<td>.00</td>
<td>-0.25</td>
<td>-0.25</td>
<td>[-0.46, 0.00]</td>
</tr>
<tr>
<td>Random Effect:</td>
<td>.13</td>
<td>.13</td>
<td>.01</td>
<td>.04</td>
<td>.07</td>
<td>.10</td>
<td>[0.00, 0.13]</td>
</tr>
<tr>
<td>Unweighted</td>
<td>[.00, .18]</td>
<td>[.00, .13]</td>
<td>[.00, .01]</td>
<td>[.04, .07]</td>
<td>[.06, .10]</td>
<td>[.04, .08]</td>
<td>[.00, .01]</td>
</tr>
<tr>
<td>Confidence</td>
<td>[.00, .18]</td>
<td>[.00, .13]</td>
<td>[.00, .01]</td>
<td>[.04, .07]</td>
<td>[.06, .10]</td>
<td>[.04, .08]</td>
<td>[.00, .01]</td>
</tr>
<tr>
<td>Interval (95% CI)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* This table shows effect sizes (rs) and the 95% confidence intervals of the overall study results.
Research Question 2. Is acculturation-adjustment relationship moderated by factors such as how acculturation is measured (unilinearly, bilinearly, or typologically), adjustment domain (psychological, sociocultural, or academic), culture of origin, generational status, age, and gender?

Meta-analysis using a random effects model was used to determine the confounding effects of the other variables assessed in this analysis including acculturation type, adjustment domain, mean age, gender, and origin culture. Meta-regression using a random effects model was used following the methods outlined in Hedges and Olkin (1985). There is an estimate for seven parameters, intercept and how acculturation is measured (unilinearly, bilinearly, or typologically), adjustment domain (psychological, sociocultural, or academic), culture of origin, generational status, age, and gender.

The $p$ values were greater than .05, and not significant at an alpha level of .05 (Table 4). Thus, the researcher accepted the null hypothesis. Acculturation-adjustment relationship was not moderated by factors such as how acculturation is measured (unilinearly, bilinearly, or typologically), adjustment domain (psychological, sociocultural, or academic), culture of origin, generational status, age, and gender.
Table 4

*Meta-Regression Analysis*

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>2.127</td>
<td>1.387</td>
<td>1.533</td>
<td>.160</td>
</tr>
<tr>
<td>How Acculturation is Measured</td>
<td>-.494</td>
<td>3.264</td>
<td>-.096</td>
<td>-.151</td>
</tr>
<tr>
<td>Adjustment Domain</td>
<td>1.167</td>
<td>3.020</td>
<td>.237</td>
<td>.386</td>
</tr>
<tr>
<td>Culture of Origin</td>
<td>-2.308</td>
<td>2.039</td>
<td>-.319</td>
<td>-1.132</td>
</tr>
<tr>
<td>Generational Status</td>
<td>-.083</td>
<td>.236</td>
<td>-.125</td>
<td>-.353</td>
</tr>
<tr>
<td>Age</td>
<td>.572</td>
<td>2.211</td>
<td>.088</td>
<td>.259</td>
</tr>
<tr>
<td>Gender</td>
<td>2.967</td>
<td>2.175</td>
<td>.457</td>
<td>1.364</td>
</tr>
</tbody>
</table>

*Note.* This table illustrates the significance of moderator variables at the p<0.05 level.
CHAPTER 5. DISCUSSION

Summary of Findings

Effect size $r_s$ for 16 studies examining only the acculturation and adjustment relationship ranged from -.24 to .66, with a mean of .16 (95% confidence intervals from .13 to .18, $p<.05$). This suggests a significant, but small association between acculturation and adjustment relationship among immigrant youth. Findings fit in with the previous literature that acculturation was correlated with adjustment (Gupta, Leong, Valentine & Canada, 2013; Nguyen & Benet-Martinez, 2013). Thus, the findings confirm knowledge in the discipline.

In the study, acculturation-adjustment relationship was not moderated by the type of acculturation measure. The finding doesn’t fit in with the previous literature that acculturation-adjustment relationship was stronger when acculturation is measured bilinearly versus unilinearly. Nguyen and Benet-Martinez (2013) found that biculturalism-adjustment when measured bilinearly, was significantly stronger. Therefore, the findings disconfirm knowledge in the discipline. However, this result may be due to several reasons, first, this study included a small number of studies ($n=16$), and only one study used a unilinear measure; and it is expected that comparing one study to 15 studies may not produce precise results. Second, publications older than 15 years were not included in this analysis; contemporary literature and this meta-analysis support that current researchers commonly prefer to use bilinear measures over unilinear measures due to the higher benefits and the accuracy of bilinear measures. In that regard, this meta-analysis presented the evidence that
acculturation researchers do not use unilinear measures anymore, which is a promising practice in the acculturation research.

In the present study, acculturation-adjustment relationship was not moderated by adjustment domain (psychological, sociocultural, or academic). This outcome fits in with the previous literature that acculturation-adjustment relationship was not stronger for the psychological domain than for the sociocultural domain and the academic domain. Nguyen and Benet-Martínez (2013) found that acculturation-adjustment relationship was not stronger for the psychological domain than for the sociocultural domain and the academic domain in their meta analytic study as well. Therefore, the findings confirm known knowledge in the discipline.

In the study, acculturation-adjustment relationship was not moderated by age and gender. This finding fits in with the previous literature that age and gender did not have a significant relationship with the strength of biculturalism, an acculturation strategy (Nguyen & Benet-Martínez, 2013). Thus, the findings confirm known knowledge in the discipline.

This meta-analysis provides a new-perspective, contributes to the acculturation literature, and consequently changes the concepts that drive this field regarding the moderating effects of generational status on acculturation-adjustment relationship. For instance, numerous meta-analytic studies have examined the relationship between acculturation and adjustment (Gupta, Leong, Valentine, & Canada, 2013; Moyerman & Forman, 1992; Nguyen & Benet-Martínez, 2013; Rogler, Cortes, and & Malgady, 1991; Yoon, Langrehr, & Ong, 2011), but none of them have examined the moderating effects of
generational status. Furthermore, all of the meta-analytic studies discussed in previous chapters worked on all age groups, resulted in insufficiencies to draw conclusions about acculturation-adjustment relationship among immigrant youth. On the other hand, including contextual factors as moderating variables (e.g., generational status) in the meta-analysis was a suggestion by previous scholars who worked on acculturation and adjustment relationship (Gupta, Leong, Valentine, & Canada, 2013; Nguyen & Benet-Martínez, 2013). In the study, moderating effects of generational status on acculturation-adjustment relationship was examined, and the results showed that the association between acculturation and adjustment was not moderated by generational status. Since, there is no consensus in the literature about the impact of generational status on acculturation and adjustment relationship; many researchers found a difference in acculturation patterns of individuals from diverse generations, whereas many others didn’t find any significant difference. For instance, Aretakis and colleagues (2015) discovered that first generation students did value education more, and reported better school efforts than their later generational peers. On the other hand, biculturalism is favored by a large number of researchers, where later generation individuals adjust better into a new culture (Berry, Phinney, Sam, & Vedder, 2006; Neto, 2010).

The study revealed no moderating effects of culture of origin on acculturation-adjustment relationship among immigrant youth. In this study, the target population was immigrant youth from a few cultures (mainly Asians, and Hispanics). Adding other countries would lead to stronger results from similar studies. However, current acculturation literature is limited to some countries, so the researchers are highly encouraged to conduct similar
studies with youth from diverse cultures. Therefore, more robust and precise results can be achieved via further meta-analytic studies.

Any results produced from meta-analytic studies cannot be interpreted without checking for possible bias in publications. Publication bias refers to the tendency of publishing significant results over non-significant results. The bias in publications across studies included in the analysis was explored graphically using a funnel plot. The funnel plot resembled an asymmetrical shape, which means there is bias across studies, and the results should be interpreted with caution. However, interpretation of funnel plots is very subjective and argued among scholars (Higgins & Green, 2011). For instance, Terrin, Schmid and Lau’s (2005) study examining the empirical evaluation of the funnel plot, found that researchers were easily misled by plot’s shape and reached deceptive conclusions. So, the results of plot shouldn’t be interpreted as rigid outcomes. For this reason, a more formal test, Egger’s test, was utilized to have stronger results. Even though funnel plot produced an asymmetrical outcome; Egger’s test did not indicate significant bias across studies.

This study is extremely meaningful for researchers, because they can learn that acculturation is correlated with adjustment among immigrant youth, and that acculturation-adjustment relationship is not moderated by factors such as how acculturation is measured (unilinearly, bilinearly), adjustment domain (psychological, sociocultural, or academic), culture of origin, generational status, age, and gender. This meta analytic study advances the knowledge in the field, and contributes to the current literature by exploring the confounding
effects of several factors such as acculturation measure, adjustment domain, culture of origin, generational status, age, and gender.

**Limitations**

There are several limitations of this meta-analysis. First, all eligible articles couldn’t be identified through multiple databases; articles are only retrieved from PsycINFO, and other relevant sources’ reference pages. However, multiple databases are preferred for meta-analytic studies in order to check for eligibility of all possible articles in the literature. Second, all studies on acculturation and adjustment relationship were not published due to insignificant findings. Third, studies only from peer reviewed journals were reviewed.

Fourth, limitations of included studies are also limitations for the current study. For instance, STROBE checklist indicated that majority of the studies included in this meta-analysis neither report bias, or take any necessary actions to reduce the possible bias in their studies. Moreover, the majority of the studies included Hispanic \(n=4\) and Asian \(n=8\) samples, so the results cannot be generalized to all immigrant youth populations.

Having a large number of variables also added another layer of limitation into this meta-analysis. For instance, many professionally developed and well organized studies \(n=40\) were excluded from this study due to not examining generational status in their analyses. Furthermore, studies published before 2002 were not included in the analysis in order to have more up to date results which meet the current immigration populations’ concerns. All these limiters yielded a smaller sample size which possibly decreased the chance of having a larger effect size for this meta-analysis.
Another limitation of this study is that only one study assessed acculturation of participants by a unilinear measure, whereas fifteen studies assessed acculturation by bilinear measures. Having a small number of studies for unilinear measures accounts for the outcome, and may lead to less precise results regarding the moderating effects of measures. However, as stated in the introduction chapter unilinear measures lack in distinguishing acculturation profiles among immigrants; while bilinear measures provide more comprehensive information about immigrants’ acculturation patterns into both heritage and host cultures. In that regard, this may be presented as promising efforts of current researchers in the field by using up-to-date assessment tools, instead of accounting having less unilinear measures as a limitation for the current study.

The target population was young people in America, Germany, Netherlands, and Australia, which do not represent all countries. The relationship between acculturation and adjustment cannot be generalized to other countries. Adding other countries would lead to stronger results from similar studies. The researcher encourages scholars, who are studying acculturation, to include more diverse groups of immigrants, and conduct their studies in different countries in order to fulfill the gap in the literature.

The researcher did not control for socio economic status, religion, family size, and educational levels of parents of participants in included studies in this meta-analysis, which might account for the outcome. Adding socioeconomic status, religion, family size, and educational levels from similar studies would lead to stronger results. However, this was not possible for the current study, due to having various criteria which is already limiting the
number of studies included in the analysis. The researcher believed that adding more criteria would lead to smaller sample size, and consequently less precise, and non-significant results.

**Use of the STROBE statement**

The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Initiative developed guidelines in accurate and complete reporting of observational studies specifically for cohort, case-control, and cross-sectional studies (Von Elm et al., 2007). To improve the quality of the reporting of included studies in this meta-analysis STROBE checklist was used. Included studies in this meta-analysis mainly consisted of correlational designs, and “correlational designs are typically cross-sectional” (Sousa, V. D., Driessnack, M., & Mendes, 2007). Since, acculturation is the main variable in the current study, and immigration cannot be manipulated by any researcher, which makes the usage of STROBE checklist possible for this meta-analysis. Even though STROBE checklist is a commonly used guideline especially in medical research (von Elm et. al., 2007), the researcher wanted to increase the quality of this meta-analysis by using a strong guideline, and go beyond counseling and educational research area, and find a list of proofed guideline items in an interdisciplinary work which is created by editorial staff from medical journals, as well as epidemiologists, methodologists, statisticians, and practitioners from Europe and North America (von Elm et. al., 2007).

As stated in previous chapter, all of the included studies in this meta-analysis meet 85% and above of STROBE guidelines. And there are similar results for some checklist items among included studies. For instance, majority of the included studies failed to
describe any efforts to address potential sources of bias. Even though many of the studies stated biases effecting their studies, they didn’t take any necessary actions. A majority of included studies also failed to provide explanations for non-participation at each stage. Missing data were not addressed, and number of participants with missing data for each variable of interest were not indicated by a large number of included studies either. Furthermore, a majority of included studies either didn’t report confounding variables, or the rationale behind the choice of potential confounding variables.

STROBE checklist provides detailed information about observational designs, however cannot be used to illustrate the quality of articles (von Elm, et. al., 2007). Each study should be addressed individually, since information varies based on “author preferences, journal style, and the traditions of the research field” (von Elm, et al., 2007, p.1456). In respect to this, the researcher’s purpose was also not to evaluate the quality of research articles in this meta-analysis, but providing a transparent reporting of included studies so that readers can have a better idea “what was planned, what was done, what was found, and what conclusions were drawn” (von Elm, et. al., 2007, p.1453), and correspondingly increasing the credibility of this study by including only a set of articles which meet at least 85% of STROBE guidelines.

STROBE checklist has the potential to improve the reporting of research studies not only in medical research, but also in counseling and related fields. For instance, the missing items among included studies resemble one another as stated above, so that if researchers follow a guideline such as STROBE may develop stronger studies, this may even improve
the body of research in long term. Another purpose of the researcher by using this checklist is to bring an innovative perspective into counseling research, and encourage counselor educators to develop a specific checklist of items for reporting of research articles by taking into account the unique nature of our field.

**Recommendations for Future Research**

The current study found a small but significant relationship between acculturation and adjustment by recruiting studies from PsychINFO database, and manual searches through reference lists of published articles and review papers identified by the keyword search. However, adding more data bases into the search for study selection might yield to a larger sample size and consequently a larger effect size. Thus, further meta-analyses including a larger number of studies could provide additional benefits to the acculturation literature.

This meta-analysis didn’t find any difference on acculturation patterns of immigrant youths who are from diverse generations. However, it is strongly recommended that further studies examining generational status in the analysis, rather than only presenting participants’ demographic information in narrative, would lead to stronger results. With an increase in the availability of research studies, further meta-analyses could reach different results.

Due to the limited availability of current literature, this meta-analysis lacks in representing all immigrant youths from diverse countries. Working on youth populations especially from under-represented cultures would lead to healthier and more inclusive results for further meta-analyses. Acculturation scholars are highly encouraged to conduct research examining immigrant youth and present separate analysis for each culture of origin.
Therefore, further meta-analyses could benefit from, and reveal the moderating effects of different cultures of origins on acculturation-adjustment relationship.

A further meta-analysis examining additional contextual factors such as immigration status and socioeconomic status would lead to different findings. For instance, it is expected that immigrants holding different immigration statuses experience acculturation in different ways (e.g., refugees who have to leave their countries due to war; political asylum seekers who have to leave their countries due to safety and protection issues; immigrants who want to proceed with their lives in a new setting due to better occupational and educational opportunities). On the other hand, socioeconomic differences would yield to different acculturation experiences as well. For instance, an immigrant with a higher socioeconomic status would reach essential sources (e.g., food, housing, medical needs, schooling, language courses, jobs etc.) more easily than an immigrant with a lower socioeconomic status. However, again this would be certainly possible with an increase in the availability of acculturation literature examining relevant contextual factors in their analyses, rather than only providing the related information in describing the participants.

**Implications for School Counselors and Counselor Educators**

The target population is immigrant youth in this meta-analysis, correspondingly mean age of participants in included studies are ranged from 15 to 24. Due to the mean age of participants in included studies, participants are mainly consisted of students. In that regard, especially school counselors need to be very careful in working with immigrant youth. For instance, the immigrant youth designation covers a variety of individuals; whereas a recent
immigrant child may be designated as immigrant youth, an immigrant’s U.S. born second
generation child may also be included under the same umbrella. These two hypothetical
immigrant youths may have dissimilar views about living in the U.S. and may have been
exposed to different challenges related to their multilingual existence. The first step in
implementing appropriate counseling programs is a careful needs assessment of the potential
recipients. Acculturation and adjustment relationship needs to be validated, and accounted
for in the selected needs assessment tools. Culturally appropriate needs assessment strategies
that are carefully conducted will help counselors match immigrant youth with appropriate
intervention.

Another way for school counselors to address this challenge is to collaborate with the
English as a Second Language (ESL) teachers who work with recent immigrant students.
These students may have close relationships with their ESL teachers, due to the isolated
setting and functioning of ESL classrooms from the mainstream school (Clemente &
Collison, 2000). Consequently, school counselor may be able to build trusting, reciprocal
relationships with ESL teachers and collaborate with them in order to better serve their
immigrant students. In these reciprocal relationships, school counselors and immigrant
students may benefit from the various attributes ESL teachers have to contribute to
enhancing the academic, career and personal/social development of their students.

Although the American School Counseling Association (ASCA, 2012) advocates
strongly for multiculturalism, diversity, equity and social justice, in practice international
students are underserved and often overlooked by school counselors in U.S. schools (Mori,
Immigrant students’ needs are not met sufficiently in their schools (Miller, 2004), so there appears to be a need for special services targeting these linguistically and culturally diverse students. This situation challenges school counselors to discover new methods or adjust existing methods to meet the needs of these students. New or revised school counseling programs that specifically address the needs of immigrant students are crucial. Adding new skills and strategies to the counselors’ toolboxes may be one useful strategy.

Counselor educators in graduate training programs for school counselors are encouraged to recognize the unique needs of immigrant youth emerging during acculturation period, and the potential for helping them become career and college ready rather than ignoring them when considering content for multicultural and methods courses in their training programs. For example, multicultural experiences in different countries, or multicultural and multilingual settings might present graduate students with difficulties related to acculturation and build an acquired empathy toward immigrant youth.

Moreover, training practitioners to conduct better program evaluation would be another way to increase the effectiveness of counseling programs in terms of serving immigrant youth through enhanced multicultural lenses in order to develop evidence based programs. Counselor educators are also encouraged to conduct more program evaluation research, and develop new models where immigrant youth populations are emphasized in order to enrich the quality of programs through better evaluation tools.

Counselors and counselor educators who want to be social justice advocates and seek to serve all their students are challenged to focus on immigrant youth. An environment where
diversity is appreciated rather than rejected is to be valued. Students experiencing these environments will be future advocates of diversity and collaborate with others for a more just world. More specifically, immigrant youth would adjust better to their new settings without losing their unique identities during such a challenging acculturation period, if the appropriate actions are taken by the school counselor and the appropriate trainings are provided to future counselors in their graduate programs.

**Recommendations for Effective School Policies**

Immigrant youths and their needs should be determined with appropriate tools (needs assessments, acculturation measures etc.) and personal pathways should be developed for each student. However, serving to this population could exceed the individual efforts of school counselors, and these efforts should be supported by new policies. Therefore, every immigrant youth can achieve their potential by more standardized school policies particularly developed for that specific population.

ESL programs in the U.S. schools and equivalent programs in different countries should not only teach how to speak a new language to recent immigrants, but also should help them to adjust to their new settings faster and healthier. In developing ESL or equivalent programs, the positive relationship on acculturation-adjustment relationship needs to be emphasized, and new more effective policies need to be developed in order to improve and accelerate students’ adaptation process to the new country.

Even though this meta-analysis didn’t find any significant moderating effect of academic adjustment on acculturation-adjustment relationship, Bal and Perzigian (2013)
indicated that academic achievement is one of the most important indicators for adaptation and later success. One factor effecting ESL students’ academic achievement is how schools place these students academically in classrooms. Schools usually enroll ESL students in lower level coursework until they can demonstrate readiness for more challenging classes. (Callahan, Wilkinson, & Muller, 2010). As a result, many immigrant students are exposed to less rigorous expectations and content that may in turn slow down their academic and social development. In that regard policy makers need to reform ESL programs, and build in new applications to make these programs more effective and efficient in order to provide more equitable opportunities in meeting the needs of immigrant students. For instance, systemic interventions and systematic assessments would be developed and offered to ESL students to create a national systemic change.

A rich body of research cited in this study indicated that the need for an overarching global structure is apparent. A large number of organizations working with recent immigrant youth exist in many receiving societies. However, it is essential that these organizations communicate with each other, share their efforts, and even develop goals and programs together in order to better serve their immigrant youth populations. This would not only improve the national efforts, but also bring strength to the global immigrant youth facet, and open doors for further implications nationally, and globally.

Finally, all recommendations stated above could only be implemented efficiently, if the necessary dialogue takes place among policy makers, counselor educators, school counselors, administrators, ESL teachers in US schools or instructors in equivalent language
programs in different countries, homeroom teachers, community stake holders, immigrant students and their parents.

**Conclusions**

In the current global political era immigrants get more attention due to their multiethnic existence, and the other important factors related to their multilingual presence in USA and in the global world. This meta-analysis not only adds to the body of literature by supporting the positive relationship between acculturation and adjustment, but also provides evidence for other factors such as acculturation measure, adjustment domain, culture of origin, generational status, age and gender have no moderating effects on this relationship among immigrant youth. In conclusion, this study could be used in extending community’s understanding of the immigrant youth who are challenged with a new cultural setting, and a complicated adaptation period. On the other hand, this meta-analysis could receive attention from leaders and policy makers with a hope of developing innovative plans for immigrant youth which will let them efficiently integrate into the society, for a better world where every individual feel safer, respected, and valued.
REFERENCES


doi:10.3998/jmmh.10381607.0008.202


development and school climate: The role of the school counselor. *Journal of
Humanistic Counseling, Education and Development, 48*(2), 195. Retrieved from
ProQuest (No. dcc580ea4721ab5eaed11b55876d1208.pdf)

Neto, F. (2010). Predictors of adaptation among adolescents from immigrant families in
Portugal. *Journal of Comparative Family Studies, 41*(3), 437-XII. Retrieved from
http://www.jstor.org/stable/41604366

Nguyen, A. D., & Benet-Martínez, V. (2013). Biculturalism and adjustment: A meta-
doi:10.1177/0022022111435097

(ASVA): A bidimensional perspective. *International Journal of Behavioral
Development, 26*, 202-213. doi:10.1080/01650250042000672

understanding of acculturation and adjustment. Journal of Cross-Cultural Psychology,

Ojeda, L., Piña-Watson, B., & Gonzalez, G. (2016). The role of social class, ethnocultural
adaptation, and masculinity ideology on Mexican American college men’s well-

support on change in mental health among young immigrants. *International Journal


in epidemiology (STROBE) statement: Guidelines for reporting observational studies.


APPENDICES
## Appendix A.

### List of Acculturation Scales Used in Included Studies

<table>
<thead>
<tr>
<th>Acculturation Scale</th>
<th>Nature of Scale</th>
<th>Purpose</th>
<th>Reliability</th>
<th>Sample culture</th>
<th>Type of Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kiang et al., 2013*</td>
<td>Bilinear</td>
<td>To measure ethnic and American identities</td>
<td>Internal consistencies ranged from .87 to .91 across subscales and within the study waves.</td>
<td>Asian Americans</td>
<td>A Likert type scale that ranges from 0 strongly disagree to 4 strongly agree</td>
</tr>
<tr>
<td>Meghani et al., 2016</td>
<td>Bilinear</td>
<td>To measure acculturation and enculturation</td>
<td>Scale has good test-retest reliability over a 2-week period (stability coefficients of .89 for the Culture of Origin (CO) subscale and .78 for the European American (EA) subscale). Cronbach’s alpha was .89 for the AAMAS-CO and .80 for the AAMAS-EA subscale (Gim Chung et al., 2004).</td>
<td>Asian Americans</td>
<td>N/A</td>
</tr>
<tr>
<td>Aguayo et al., 2011</td>
<td>Bilinear</td>
<td>To assess participants’ behavioral acculturation and enculturation</td>
<td>The alpha score for the current study was .89 for the Mexican Orientation Scale (MOS) and .65 for the Anglo Orientation Scale (AOS).</td>
<td>Mexican Americans</td>
<td>A 5-point Likert scale, ranging from 1 (not at all) to 5 (extremely often or almost always)</td>
</tr>
<tr>
<td>Cano et al., 2010</td>
<td>Bilinear</td>
<td>To assess participants’ behavioral acculturation and enculturation</td>
<td>For this study, the coefficient alphas for MOS and AOS were .88 and .68, respectively.</td>
<td>Mexican Americans</td>
<td>A Likert type scale that ranges from not at all (1) to extremely often or almost always (5)</td>
</tr>
</tbody>
</table>

### Table 1

*Properties of Acculturation Scales Used in Included Studies*
<table>
<thead>
<tr>
<th>Study</th>
<th>Measure</th>
<th>Methodology</th>
<th>Description</th>
<th>Sample</th>
<th>Scale Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Du et al., 2015</td>
<td>The Vancouver Index of Acculturation (VIA; Ryder et al., 2000)</td>
<td>Bilinear</td>
<td>To measure acculturation and enculturation</td>
<td>Chinese international students</td>
<td>A Likert-type scale that ranges from 1 (strongly disagree) to 9 (strongly agree)</td>
</tr>
<tr>
<td>Juang et al., 2009</td>
<td>The Acculturation Scale (Nguyen et al. 1999)</td>
<td>Bilinear</td>
<td>To measure orientation toward U.S. culture and orientation toward Vietnamese culture separately</td>
<td>Chinese**</td>
<td>A 5-point Likert scale that ranges from 1 (strongly disagree) to 5 (strongly agree)</td>
</tr>
<tr>
<td>Kashima et al., 2006</td>
<td>A sub-scale of the Collective Self-Esteem Scale (Luhtanen &amp; Crocker, 1992)</td>
<td>Bilinear</td>
<td>To measure heritage and dominant cultural orientations</td>
<td>Asian international students in Australia</td>
<td>A 7-point interval Likert type scale extended from 1 'strongly disagree' to 7 'strongly agree'</td>
</tr>
<tr>
<td>Ouarasse et al., 2005</td>
<td>A 68-item acculturation scale was developed by authors.</td>
<td>Bilinear</td>
<td>To measure the extent to which participants like or dislike elements of Moroccan culture and of Dutch culture</td>
<td>Moroccans in Netherlands</td>
<td>A 5-point Likert type scale ranges from not at all (1) to very much (5)</td>
</tr>
<tr>
<td>Perreira et al., 2010</td>
<td>*** Multigroup Ethnic Identity Measure (MEIM; Phinney, 1992) and The Multidimensional Inventory of Black Identity (MIBI; Sellers, Rowley, Chavous, Shelton, and Smith, 1997).</td>
<td>Bilinear</td>
<td>To measure heritage cultural orientation</td>
<td>Latino adolescents</td>
<td>A 5-point rating scale (scores are ranged from 1 to 5 on both scales)</td>
</tr>
<tr>
<td>Wu et al., 2012</td>
<td>The Acculturation Index (AI; Ward &amp; Rena-Deuba, 1999)</td>
<td>Bilinear</td>
<td>To measure participants’ degree of cultural adoption in the host culture as well as their cultural maintenance of their home culture.</td>
<td>Chinese students in Hong Kong</td>
<td>A 7-point Likert type scale ranging from 1 (not at all similar) to 7 (very similar).</td>
</tr>
<tr>
<td>Study</td>
<td>Scale Description</td>
<td>Type</td>
<td>Measure</td>
<td>Reliability</td>
<td>Population</td>
</tr>
<tr>
<td>-------</td>
<td>------------------</td>
<td>------</td>
<td>---------</td>
<td>-------------</td>
<td>------------</td>
</tr>
<tr>
<td>Ojeda et al., 2016</td>
<td>Scale I of the Acculturation Rating Scale for Mexican Americans–II (ARSMA-II; Cuéllar et al., 1995)</td>
<td>Bilinear</td>
<td>To measure adherence to the Mexican and White culture</td>
<td>In the present study, the Mexican Orientation Subscale (MOS) and Anglo Orientation Subscale (AOS) yielded alphas of .89 and .62, respectively.</td>
<td>Mexican Americans</td>
</tr>
<tr>
<td>Stoessel et al., 2012</td>
<td>A two-statement item is taken from a group identification scale (Doosje, Ellemers, &amp; Spears, 1995).</td>
<td>Bilinear</td>
<td>To measure cultural identification in both cultures.</td>
<td>Both measures showed adequate reliability as the large positive test-retest correlations for “German” (ranging between r = .50 and r = .71 for subsequent waves) and for “Russian” (ranging between r = .51 and r = .65 for subsequent waves) indicated.</td>
<td>Ethnic German immigrants in Germany (repatriated from Russia)</td>
</tr>
<tr>
<td>Dimitrova et al., 2015</td>
<td>Two-statement measurement method employing questions about both heritage and host cultures (Arends-Tóth &amp; Van de Vijver, 2004).</td>
<td>Bilinear</td>
<td>To measure home and host cultural orientations</td>
<td>Internal consistencies were a = .93 (Turkish-Bulgarian sample) and a = .94 (Turkish-German sample)</td>
<td>Turkish youth in Bulgaria and Germany</td>
</tr>
<tr>
<td>Yoon et al., 2012</td>
<td>The Abbreviated Multidimensional Acculturation Scale (AMAS-ZABB; Zea, Asner-Self, Birman, &amp; Buki, 2003)</td>
<td>Bilinear</td>
<td>To measure acculturation and enculturation in the three dimensions of identity, cultural competence, and language competence.</td>
<td>The Cronbach’s alphas for Mexican American students in this study were .92 for acculturation scale and .95 for enculturation scale; the alphas for Asian students were .91 for acculturation scale and .92 for enculturation scale.</td>
<td>Mexican American students and Asian students****</td>
</tr>
<tr>
<td>Yeh, 2003</td>
<td>Suinn–Lew Asian American Self-Identity Acculturation Scale (SL–ASIA). (Suinn, Ahuna, &amp; Khoo, 1992; Suinn, Rickard-Figueroa, Lew, &amp; Virgil, 1987)</td>
<td>Unilinear</td>
<td>To measure attributes associated with acculturation such as, language use, identity, friendships, cultural customs, generational and geographical background, and ethnic attitudes.</td>
<td>Cronbach’s alpha for the present study was .90 for the 21 original SL–ASIA items.</td>
<td>Asian Americans</td>
</tr>
</tbody>
</table>

* Only first authors have been stated. ** Original scale is developed for Vietnamese sample. Authors adapted this measure to a Chinese sample by substituting the word “Vietnamese” with “Chinese”. *** Couple of items was derived from a subscale of items on the Multigroup Ethnic Identity Measure (Phinney, 1992) to measure Ethnic affirmation and belonging. Ethnic identity centrality was measured by using The Multidimensional Inventory of Black Identity (MIBI; Sellers, Rowley, Chavous, Shelton, and Smith, 1997). **** The initial validation was accomplished with Latino and Latina samples; Zea et al. (2003) developed the AMAS-ZABB for use with diverse ethnic groups.
### Appendix B.

**Journal Publication Distribution of Included Studies**

<table>
<thead>
<tr>
<th>Journal</th>
<th>Number of Included Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>The Counseling Psychologist</em></td>
<td>2</td>
</tr>
<tr>
<td><em>International Journal of Intercultural Relations</em></td>
<td>2</td>
</tr>
<tr>
<td><em>The Journal of Primary Prevention</em></td>
<td>1</td>
</tr>
<tr>
<td><em>Cultural Diversity and Ethnic Minority Psychology</em></td>
<td>1</td>
</tr>
<tr>
<td><em>Asian American Journal of Psychology</em></td>
<td>1</td>
</tr>
<tr>
<td><em>Journal of Diversity in Higher Education</em></td>
<td>1</td>
</tr>
<tr>
<td><em>Journal of Social Issues</em></td>
<td>1</td>
</tr>
<tr>
<td><em>Social Psychology</em></td>
<td>1</td>
</tr>
<tr>
<td><em>Developmental Psychology</em></td>
<td>1</td>
</tr>
<tr>
<td><em>Journal of Hispanic Higher Education</em></td>
<td>1</td>
</tr>
<tr>
<td><em>Psychology of Men &amp; Masculinity</em></td>
<td>1</td>
</tr>
<tr>
<td><em>Cultural Diversity and Ethnic Minority Psychology</em></td>
<td>1</td>
</tr>
<tr>
<td><em>European Psychologist</em></td>
<td>1</td>
</tr>
</tbody>
</table>
Appendix C.

Characteristics of Included Studies: Frequency of Elements

Figure 1. Year of Publication. This figure illustrates publication years of included studies.

Figure 2. Study design. This figure illustrates study designs of included studies.
Figure 3. Total number of subjects. This figure illustrates sample sizes of included studies.

Figure 4. How acculturation is measured. This figure illustrates the nature of scales used in included studies.
Figure 5. Culture of origin. This figure illustrates samples’ origin cultures in included studies.

Figure 6. Generational status. This figure illustrates samples’ generational status in included studies.
Figure 7. Host culture. This figure illustrates samples’ host cultures in included studies.

Figure 8. Mean age. This figure illustrates samples’ mean age in included studies.
Figure 9. Percentage male. This figure illustrates samples’ genders in included studies.

Figure 10. Adjustment domain. This figure illustrates adjustment domains examined in included studies.
Appendix D.

Preferred Reporting Items for Systematic Reviews and Meta-Analyses

Table 3
PRISMA Checklist

<table>
<thead>
<tr>
<th>Section/topic</th>
<th>#</th>
<th>Checklist item</th>
<th>Reported on page #</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TITLE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>1</td>
<td>Identify the report as a systematic review, meta-analysis, or both.</td>
<td>✓</td>
</tr>
<tr>
<td><strong>ABSTRACT</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structured summary</td>
<td>2</td>
<td>Provide a structured summary including, as applicable: background; objectives;</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td>data sources; study eligibility criteria, participants, and interventions;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>study appraisal and synthesis methods; results; limitations; conclusions and</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>implications of key findings; systematic review registration number.</td>
<td></td>
</tr>
<tr>
<td><strong>INTRODUCTION</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rationale</td>
<td>3</td>
<td>Describe the rationale for the review in the context of what is already known.</td>
<td>16-49</td>
</tr>
<tr>
<td>Objectives</td>
<td>4</td>
<td>Provide an explicit statement of questions being addressed with reference to</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>participants, interventions, comparisons, outcomes, and study design (PICOS).</td>
<td></td>
</tr>
<tr>
<td><strong>METHODS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protocol and registration</td>
<td>5</td>
<td>Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.</td>
<td>54-55</td>
</tr>
<tr>
<td>Eligibility criteria</td>
<td>6</td>
<td>Specify study characteristics (e.g., PICOS, length of follow-up) and report</td>
<td>55-57</td>
</tr>
<tr>
<td></td>
<td></td>
<td>characteristics (e.g., years considered, language, publication status) used as</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>criteria for eligibility, giving rationale.</td>
<td></td>
</tr>
<tr>
<td>Information sources</td>
<td>7</td>
<td>Describe all information sources (e.g., databases with dates of coverage,</td>
<td>53-54</td>
</tr>
<tr>
<td></td>
<td></td>
<td>contact with study authors to identify additional studies) in the search and</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>date last searched.</td>
<td></td>
</tr>
</tbody>
</table>
Table 3  
*Continued*

<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search</td>
<td>8</td>
<td>Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.</td>
<td>54-57</td>
</tr>
<tr>
<td>Study selection</td>
<td>9</td>
<td>State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).</td>
<td>58</td>
</tr>
<tr>
<td>Data collection process</td>
<td>10</td>
<td>Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.</td>
<td>60</td>
</tr>
<tr>
<td>Data items</td>
<td>11</td>
<td>List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.</td>
<td>58-60</td>
</tr>
<tr>
<td>Risk of bias in individual studies</td>
<td>12</td>
<td>Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.</td>
<td>62</td>
</tr>
<tr>
<td>Summary measures</td>
<td>13</td>
<td>State the principal summary measures (e.g., risk ratio, difference in means).</td>
<td>60</td>
</tr>
<tr>
<td>Synthesis of results</td>
<td>14</td>
<td>Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.</td>
<td>61</td>
</tr>
<tr>
<td>Risk of bias across studies</td>
<td>15</td>
<td>Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).</td>
<td>62</td>
</tr>
<tr>
<td>Additional analyses</td>
<td>16</td>
<td>Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.</td>
<td>61</td>
</tr>
</tbody>
</table>

**RESULTS**

<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study selection</td>
<td>17</td>
<td>Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.</td>
<td>64</td>
</tr>
<tr>
<td>Study characteristics</td>
<td>18</td>
<td>For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.</td>
<td>67</td>
</tr>
<tr>
<td>Risk of bias within studies</td>
<td>19</td>
<td>Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).</td>
<td>72</td>
</tr>
<tr>
<td>Results of individual studies</td>
<td>20</td>
<td>For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.</td>
<td>67</td>
</tr>
<tr>
<td>Synthesis of results</td>
<td>21</td>
<td>Present results of each meta-analysis done, including confidence intervals and measures of consistency.</td>
<td>83</td>
</tr>
<tr>
<td>Table 3 Continued</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Risk of bias across studies</strong></td>
<td>22</td>
<td>Present results of any assessment of risk of bias across studies (see Item 15).</td>
<td>81</td>
</tr>
<tr>
<td><strong>Additional analysis</strong></td>
<td>23</td>
<td>Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).</td>
<td>89-90</td>
</tr>
<tr>
<td><strong>DISCUSSION</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Summary of evidence</strong></td>
<td>24</td>
<td>Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).</td>
<td>91</td>
</tr>
<tr>
<td><strong>Limitations</strong></td>
<td>25</td>
<td>Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).</td>
<td>94</td>
</tr>
<tr>
<td><strong>Conclusions</strong></td>
<td>26</td>
<td>Provide a general interpretation of the results in the context of other evidence, and implications for future research.</td>
<td>104</td>
</tr>
<tr>
<td><strong>FUNDING</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Funding</strong></td>
<td>27</td>
<td>Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.</td>
<td>-</td>
</tr>
</tbody>
</table>