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Longitudinal Changes in Acculturation for Immigrant Women from the Former Soviet Union

Arlene Michaels Miller, Edward Wang, Laura A. Szalacha, and Olga Sorokin
University of Illinois at Chicago

Abstract

Most research on immigrant acculturation has been conducted with cross-sectional samples, using statistical designs that may not capture different trajectories for the components that contribute to this complex concept. The purpose of this study was to examine change over time in acculturation for 226 women from the former Soviet Union who had lived in the US fewer than eight years when recruited. Using self-report data from four annual waves, growth trajectories were examined in four components of acculturation (American behavior, Russian behavior, English language proficiency, and cultural generativity). Results indicate that these components changed at varying rates. Acculturation is a process with multiple distinct components which should be measured separately to obtain a full profile of change over time.

According to the International Organization for Migration, there are 191 million migrants worldwide (International Organization for Migration, 2007). In 2005, 35.2 million residents of the United States (US) were immigrants. They represented slightly more than 12% of the total population, the highest percentage since the 1940s. Between 2000 and 2005, 7.9 million new immigrants settled in the US, more than during any other five-year period in American history (Camarota, 2005). Immigrants around the world constitute growing populations of individuals and families who are vulnerable to a range of disparities in mental and physical health. These vulnerabilities may be due in part to chronic stress related to acculturation, discrimination, and difficulty accessing and utilizing health care appropriately due to cultural barriers (Finch & Vega, 2003; Hovey, 2000; Ivanov & Buck, 2002; Miller & Chandler, 2002). Examining the acculturation processes inherent to the experience of immigration is necessary before we can understand their effects on health and adaptation (Negy & Woods, 1992; van de Vijver & Phalet, 2004).

One of the earliest definitions of acculturation that is still widely used proposes that it comprises “those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact, with subsequent changes in the original culture patterns of either or both groups (Redfield, Linton, & Herskovits, 1936).” This definition specifies neither a cultural category (such as ethnic, religious, occupational, or generational) nor a cultural group (such as minority vs. majority, insider vs. outsider etc.), making it applicable to a variety of intercultural interfaces and mutually transformative exchanges. When defined this way, acculturation appears to be a reasonably common human experience.

As acculturation has been growing in popularity as a subject of scientific inquiry, however, the term has predominantly been applied to racial/ethnic minority individuals and

populations as they experience contact with majority or mainstream cultures. Immigrants in particular are among the groups most commonly studied by acculturation researchers. Immigrants stand out among the rest of participants of intercultural exchange because of the unmatched magnitude of acute exposure to a culture that is not their own. Studying acculturation in immigrant populations is likely to be of considerable consequence for individuals and societies for many years to come.

Operationally, acculturation broadly refers to selective adoption and retention of language, identity, behavior, and values as they are maintained or transformed by the experience of coming into contact with another culture. It is a dynamic cognitive and emotional process of accessing, understanding and/or adopting specific aspects or characteristics of a new culture. On an individual level, it is a complex process of conflict and negotiation between two cultures and includes changes that occur as one accommodates to a new cultural milieu (Teske & Nelson, 1974).

Within the last few decades, a number of theories and models have been developed that attempt to explain immigrant acculturation and predict its outcomes. One approach to studying acculturation is to examine relationships between interfacing cultures. Unidimensional, and later bidimensional, models have been proposed (Berry, 1997; Ryder, Alden, & Paulhus, 2000). The former model views acculturation as a cultural transformation along one continuum with native culture as a starting point and a host culture as a destination point; biculturalism is represented as the midpoint of this continuum. The latter proposes viewing cultures as independent dimensions; acquisition of a new culture and retention of original culture are not mutually exclusive. Although the more sophisticated bidimensional model has been gradually replacing its unidimensional predecessor, new theories and models, which are yet more complex, have also been proposed to explain the many variations of cultural patterns that are found for first and second generation immigrants across international contexts (Bhatia & Ram, 2001; Flannery, 2001; Portes & Zhou, 1993; Willgerodt, Miller, & McElmurry, 2002). Testing these models and documenting acculturation patterns remains challenging because criteria for measuring acculturation status and cultural change have not been clearly defined (Cabassa, 2003; Hunt, Schneider, & Comer, 2004).

As the body of acculturation research has grown, acculturation has increasingly been used as a variable to explain and predict various health, social, and economic outcomes. Operational definition and measurement of this concept, however, often varies across studies, and it is possible that contradictory findings in research on the effects of acculturation are partly due to a lack of metric accord.

Acculturation is frequently represented in research by proxy measures of cultural change, such as length of residence or age at immigration, or single component measures such as language acquisition. The use of these measures is based on the assumption that a single component of acculturation is an adequate representation of the entire set of components and accurately reflects the bigger picture of cultural changes. In spite of the appeal of simple proxy measures, they serve mainly as indicators of a complex phenomenon that is not explicated by their use.

It is therefore important for acculturation instruments to include more differentiated components of this construct, including observable behaviors that are representative of either the dominant or native culture in addition to language proficiency or use (Birman & Trickett, 2001; Rodriguez, Myers, Morris, & Cardoza, 2000; Suinn, Ahuna, & Khoo, 1992). Another important component is cultural values, often measured in relation to family and gender cultural attitudes or roles, including the importance placed on preserving native

culture and transferring it to younger generations (Harris & Verven, 1998; Kim, Atkinson, & Yang, 1999). Several instruments have been developed that integrate several components of acculturation and produce a composite score that represents acculturation status. The use of composite instruments may be problematic, however, when they assume that all components change at the same pace and relate to outcomes in a similar way. Instruments with composite scores may confound the effects of the components of acculturation that can be identified when they are measured separately (Marino, Stuart, & Minas, 2000).

Differences in the structure of acculturation across immigrant groups have not been clarified. This is especially true for some groups, such as those from the former Soviet Union (FSU), who have resettled in relatively large numbers in several countries, including the US, Germany, and Israel in the past two decades but are understudied, in part due to their smaller representation compared to other larger cohorts of immigrants.

Another concern in acculturation research is the virtual absence of longitudinal studies. Despite the fact that, by definition, acculturation status changes over time, most attempts to explore the way it unfolds have been cross-sectional. Few studies examine trajectories (pace and sequence) or longitudinal patterns of the components over time. Although the components of acculturation are typically assumed to be interdependent, they presumably proceed at varying rates of change over time (LaRoche, Kim, Hui, & Tomiuk, 1998). Change within the components is not necessarily linear or hierarchical (Phinney, 1990). Further, although Fuligni (2001) suggests several hypotheses for studying longitudinal interactions between child development and acculturative changes, few studies address longitudinal changes in acculturation that may occur for adults at midlife and older ages.

The longitudinal data collected in this study present a unique opportunity to examine acculturative changes in midlife and older immigrants from the former Soviet Union over time. The objectives of the study are to examine individual components of acculturation, including culture-specific behaviors, English language proficiency, and the value of cultural generativity, and to explore their trajectories in relation to each other.

Method

Design

Data for this analysis are from a prospective, descriptive study of the influence of acculturation, family adaptation, and health behavior on health status and well-being in midlife and older women from the former Soviet Union. Data were collected at baseline and three annual data collection sessions from 226 participants in the four-year longitudinal study.

Sample and Recruitment

Women were eligible for enrollment in the study if they were 40–74 years old, had immigrated directly from the FSU to the US fewer than 8 years prior to entry into the study, were able to read and write Russian fluently, were married or partnered, and had at least one child living in the US. The latter two criteria were included because of our focus on family adaptation. Exclusion criteria were hospitalization for psychotic mental illness in the US, currently taking antipsychotic medication, or having a debilitating illness. The women resided in urban and suburban neighborhoods of the Chicago Metropolitan Area. Recruitment strategies included announcements on Russian language radio, advertisements in Russian language newspapers, announcements and distribution of flyers in neighborhood businesses, clinics, community groups, English as second language (ESL) classes, and word of mouth. During the recruitment period, 354 women were screened, with 245 (69.2%)

eligible for participation. Of those who were eligible, 19 (8%) declined to participate, and 226 (92%) were enrolled for baseline data collection.

Of the 226 women who completed baseline data collection, 222 (98.2%) completed the second round, 218 (96.6%) completed the third round, and 216 (95.6%) completed all four rounds of data collection. Overall, only 10 (4.40%) participants failed to complete the study: six declined further participation or were lost to follow up, two returned to Russia, and two died before completing the study. The multilevel statistical modeling method used in the study allows for different numbers of data points. Data from all four rounds and all 226 participants are included in these analyses (Hedeker & Gibbons, 2006).

Demographic characteristics of the sample are presented in Table 1. The mean age of the women at baseline was 56.80 (SD 8.58, Range 40–74). The mean number of years in the US was 3.38 (SD 2.28), with a range of 0.09–7.99 years, and mean age at immigration was 53.30 (SD 8.46). The women were well-educated prior to immigration to the US: 167 (73.9%) had completed at least an undergraduate degree at a university or institute, 57 (25.2%) had completed general, specialized or technical secondary school, and only 2 (0.9%) did not complete secondary school.

Consistent with national statistics regarding immigrants from the FSU in the US, the majority of women reported their primary or secondary ethnicity/religion in the FSU as Jewish. The women emigrated from 10 different Republics, but the majority came from Ukraine (40.8%), Russia (31.2%), and Belarus (3.8%). These Republics produced the greatest number of emigrants, and also had the highest concentration of Jews prior to the breakup of the FSU. All respondents indicated that Russian was their primary language in the FSU, and were comfortable using this language for study questionnaires.

Procedures

Prospective participants called the project telephone number, which was answered by a voice mail message in Russian. They were screened for eligibility over the telephone by Russian-speaking project staff who described the study in detail. Appointments were made for women who met criteria and agreed to participate. A packet of demographic and health status questionnaires was sent to each participant, and was returned at the first data collection session.

Data collection took place individually at participants' homes or in groups of 5–10 at a convenient community meeting room. Informed consent forms were signed in the presence of the bilingual staff. Additional questionnaires were self-administered in Russian. In addition to self-report questionnaires, physical measures for assessing cardiovascular disease risk were obtained; these data are not included in the present analysis. Data collection sessions took approximately 2–3 hours. Breakfast was served during the sessions, and modest cash payments were provided after each session for travel and time reimbursement. Other incentives included small annual gifts such as cloth bags and key chains with the project logo, birthday and New Year's holiday cards, and regular project newsletters. Feedback on physical measures was given, and calls for nutrition assessments served to maintain contact and corroborate addresses of the participants. These activities served to maintain commitment and reduce attrition. The study was approved by the Institutional Review Board of the investigators' university.

Measures

In order to test the validity and reliability of the instruments over time with our sample of older immigrant women from the FSU, we explored the measures of acculturation through

principal components analyses within each measurement period. We then estimated Cronbach's alpha internal consistency coefficients for each measure within each period.

American and Russian lifestyle behaviors were assessed by the Language, Identity and Behavior (LIB) Acculturation Scale developed by Birman & Trickett (2001). Items from the Behavioral Acculturation Subscales were used. Examples of items on the American Behavioral Acculturation Subscale include how much do you "prepare food like Americans," "socialize with American friends," "eat at American restaurants," and "attend American concerts, exhibits?" The Russian Behavioral Acculturation Subscale includes the same stems for items with relation to Russian behavior (e.g., how much do you "prepare food like *Russians*," etc.). For each subscale, items were rated on a 4-point Likert-type scale (ranging from 1=*not at all* to 4=*very much*).

For the present study, the items were modified slightly to include 8 statements for each subscale. Mean scores were calculated. For both the American and Russian behavioral acculturation scales a single component solution was indicated by eigenvalues (3.22 and 2.98 respectively, with all others under 1.0) and the "elbows" in the screeplots (Afifi, Clark & May, 2004). The single component explained 40.3% of the variance in American behavior and 39.2% of the variance in Russian behavior. There are no established norms for the scores on the LIB. Reliability coefficients for the 4 rounds of data collection ranged from .74 – .80 for American behavior and .72–.77 for Russian behavior.

English proficiency was measured by 3 items from the Acculturation and Assimilation Scale (Hazuda, Stern, & Haffner, 1988): "How well do you (a) understand, (b) read, and (c) speak English?" A 4 point Likert-type scale (1=*not at all* to 4=*very much*) was used, and mean scores were calculated. The eigenvalue for a single component was 2.59 with all others under 1. The single component explained 51.1% of the variance. The Cronbach's alphas for this sample were .74–.76 across the four rounds.

The value placed on cultural generativity (i.e., transmitting cultural characteristics to subsequent generations) was assessed by a 7 item scale that measured the value that the respondents attached to their children's maintenance of Russian cultural characteristics (Birman, unpublished data). A 4 point Likert-type scale (1=*not at all* to 4=*very much*) was used, and mean scores were calculated. Items included "How important is it to you that your child considers him/herself Russian," and "How important is it to you that your child be interested in Russian culture?" A single component solution was indicated by an eigenvalue of 3.20, with all others under 1.0, and the "elbow" in the screeplots (Afifi, Clark & May, 2004). The single component explained 64.1% of the variance in cultural generativity. Reliability coefficients across the four rounds of data collection were .72–.86.

The American and Russian Behavior Subscales of the LIB Scale and the cultural generativity questions were developed in Russian by the original developers of the scales for use in Russian-speaking samples (Birman & Trickett, 2001). The English Proficiency subscale from the Acculturation and Cultural Assimilation Scales was translated into Russian for this study by the back translation method (Brislin, 1986).

Data Analysis

Descriptive statistics and correlations among the four components (American Behavior, Russian Behavior, English Language Proficiency, and Cultural Generativity) were estimated. To investigate both the initial levels and the trajectories of change over time in these four components of acculturation, we fit multilevel models to the data; that is, a series of individual growth models on each acculturation component using PROC MIXED (SAS/STAT statistical software, Release 9.1, 2005, SAS Inc., Cary, NC).

Multilevel or mixed-effects models analyses have become increasingly popular in applied behavioral science research (Guo & Wang, 2004; Kulis, Yabiku, Marsiglia, Nieri, & Nieri, 2007; Schnurr, et al., 2007). Unlike other repeated measures analyses, the many advantages of this statistical method for analyzing change lay in its flexibility – most specifically, its flexibility with time. First, mixed-effects modeling allows for variably spaced measurement occasions. Rather than requiring the same amount of time between each data collection for each participant, there can be differing data collection schedules. Second, it allows for varying numbers of waves of data per participant—the same number of data point are not required for all participants. Therefore, missing data (unbalanced designs) are more easily managed (Hedeker & Gibbons, 2006; Singer & Willett, 2003). Mixed-effects models estimate individual trajectories with longitudinal measurements and yield valid inferences even when participants vary in the number of observations or in the intervals between observations. Thus researchers can use all of the information available in the longitudinal model at each wave rather than only use the data from those who completed all the waves of data collection. Third, it allows the opportunity to test for interactions between predictors and time, whereas ANOVA models lack a parameterization for time itself. Finally, mixed-effects modeling enables the examination of changes in elevation and slope over time and can explore a variety of functional forms of that change, such as linear, curvilinear, and even abrupt changes.

For this study, we modeled the growth parameters on each individual as random effects (intercept), and individual-level covariates (time in the US, age) as fixed effects to determine their impact on each acculturation component. We also examined the structure of the variance-covariance matrix of the repeated measurements (Goldstein, Healy, and Rasbash, 1994; Van Leeuwen, 1997). We began by fitting an unconditional means model that provided baseline estimates of the variance components (Littell, Milliken, Stroup, Wolfinger, & Schabenberber, 2006). This can be understood as a one-way random effects ANOVA model. These models were then used to evaluate the fit of subsequent models with linear and quadratic functions of time. The final model specification consists of multivariate analysis of variance using mixed models with 4 dependent variables, with random intercept, and with fixed effects of age and time as time-variant covariates.

Additionally, an interaction between time in the US and age was tested with each outcome. This interaction was never a significant predictor, and thus was not included the final models (analyses not shown). People who arrived in different years (regardless of time in US or age) may have different acculturation slopes due to different life experiences prior to immigration; therefore, we also controlled for the year arrived in the US and modeled it as a random effect in the mixed models. The method of estimation used in the final models was maximum likelihood (ML) and the covariance structure chosen for the final model was based on the smallest variance generated as it resulted in the best fitting statistics of the model (see Littell et. al., 2006, pp.174–188 for specific guidelines on selecting appropriate covariance model). The inclusion of a participant-specific error term controls for all unmeasured characteristics of the participants, so that the person-time specific error term would meet independence assumptions (Littell et al., 2006).

Results

Correlations among age, time in the US, and acculturation scores in each round of data collection are presented in Table 2. Age was negatively correlated with American behavior ($r = -.26$ to $-.33$, $p < .05$) and English language proficiency ($r = -.30$ to $-.46$, $p < .05$), but was positively correlated with Russian behaviors ($r = .40$ to $.38$, $p < .05$). The magnitude of the inverse correlations between age and English language proficiency increased over time. Conversely, there was a steady decline in the strength of the positive correlation between

time in the US and English language proficiency from round 1 ($r=0.39$, $p<.05$) to round 4 ($r=.11$, $p =n.s.$). Positive relationships were found between time in the US and American behavior ($r=0.25$ to 0.20 , $p<.05$) for all rounds of data collection without any notable trend.

There was an increase in the strength of the correlations between time in the US and Russian cultural generativity from round 1 ($r=-.02$, $p =n.s.$) to round 4 ($r=.22$, $p<.05$). Conversely, the relationship between time in the US and Russian behavior declined notably from round 1 ($r=.23$, $p<.05$) to round 4 ($r=.04$, $p=n.s.$). American behavior was positively correlated with English language proficiency ($r=.54$ to $.53$, $p<.05$) and inversely correlated with Russian behaviors ($r=-.29$ to $-.26$, $p<.05$). Overall there was no relationship between English language proficiency and Russian cultural generativity.

When the components of acculturation were regressed over time in the US, different trajectories for each of the components emerged. Table 3 presents the nested models (unconditional, linear, and quadratic) with corresponding slope estimates and goodness of fit statistics. Within each component, the final model was selected when chi-square change in subsequent degree of slope was no longer significant. The results of these growth curve analyses are illustrated in Figures 1a–1d. (The predicted curves in each figure are defined by the average slope of all of the individual participants' curves. As such, these curves do not represent mean scores from each assessment point.)

American behavior increased and Russian behavior decreased over time. Their rates of change, and the nature and the direction of their development, however, were quite different. As illustrated in Figures 1a and 1b, the development in American behavior, controlling for age, showed a significant, if small, positive, linear growth (linear coefficient $=.019$, $t= 2.28$, $p <.05$). In contrast, Russian behavior, controlling for age, was reported at greater levels in the first years after immigration, but then showed a significant curvilinear decline (quadratic coefficient $= -.006$, $t=-3.12$, $p<.01$). English language proficiency (Figure 1c) grew over the first 8 years, but years 9 through 12 show a perceived decline in those skills (linear coefficient $= .239$, $t = 11.89$, $p<.0001$, quadratic coefficient $= -.014$, $t=-7.63$, $p<.0001$). In contrast, Russian cultural generativity (Figure 1d) showed a significant quadratic growth over time (quadratic coefficient $= .011$, $t= 3.38$, $p<.001$). Age was positively predictive of Russian behavior and inversely predictive of American behavior and English language proficiency, but was not a significant predictor of Russian cultural generativity. Overall, the model fit for Russian cultural generativity was relatively poor compared to other three components of acculturation. Thus, results of Russian cultural generativity should be interpreted with caution.

Discussion

The four components of acculturation that were analyzed longitudinally in this study – American behavior, Russian behavior, English proficiency, and value of cultural generativity – showed unique patterns of transformation over time, with trajectories that varied in shape, direction and rate of change. Our findings are consistent with those of others, such as LaRoche et al. (1998) and Phinney (1990), who suggest that change over time in acculturation components varies. The behavioral components of acculturation, analyzed in both American and Russian cultural dimensions, yielded results that were consistent with a bidimensional view of acculturation (Birman & Trickett, 2001), and our findings are also consistent with previous research that suggests that acculturation levels are expressed differently across aspects or domains of life (Arends-Toth & van de Vijver, 2004; Salant & Lauderdale, 2003; Ying, 2005). Our study findings also corroborate the differences in scores for behavior and values components of acculturation in studies found by Marino, Stuart, & Minas (2000), and Jasinskaja-Lahti & Liebkind (2000), who found differences in

adolescent immigrants to Finland by time since immigration. None of these studies examined different components over time, however.

The correlations between time in the US and American behavior remain significant across all four rounds of data collection, but time in the US is significantly positively correlated with Russian behavior only during the first two rounds. The initial increase in Russian behavior with time may be attributed to the women's attempts to adapt their Russian ways of life to their new country. Once these Russian behavioral patterns are established, they are no longer time-dependent. The greater magnitude of the inverse correlation between age and English language proficiency as time went by suggests that as these women aged they tended to feel increasingly less competent in English, and suggests that older women feel they are falling behind in their progress toward English language proficiency.

Further, the decline in the strength of correlations between time in the US and English language proficiency from rounds 1 to 4 may indicate that after an intense initial period of language acquisition, length of residence no longer facilitates language proficiency in this sample of women who immigrated at midlife. At round 4, when all women have resided in the US for at least 4 years, the time-language relationship no longer exists. Similarly, this decline in the strength of correlations between time in the US and English language proficiency suggests that there is an inverse effect of aging on the relationship between time in the US and English language proficiency. Thus, longitudinal analysis allows us to note that not only do older women tend to feel less proficient in English than younger women; they also perceive that their proficiency in English decreases as they age.

The increase in the strength of the correlations between time in the US and Russian cultural generativity suggests that the desire to transmit Russian cultural characteristics to later generations may accelerate more rapidly the longer they live in the US, regardless of age. This suggests that although the women exhibited less Russian behavior as time went by, they may nevertheless increasingly felt the desire to preserve aspects of their Russian culture.

Although American behavior and Russian behavior were negatively correlated, the correlation was only moderate in strength, suggesting that these two behaviors are not parts of a unidimensional continuum, but rather two different constructs. Examination of the trajectories (Figures 1a–1d) show that these components were not mirror images of one another: American behavior demonstrated small but significant linear growth, while Russian behavior showed curvilinear decline with a rate of change that was greater in years 5–12 than in years 0–5. The relative flatness of the curve for American behavior indicates that midlife and older women from the FSU continue to retain predominately Russian behaviors while slowly adding others that they consider more American.

The different rates of change for these two behavioral variables also suggest that this immigrant group may experience a period of low cultural engagement, when the faster Russian behavior decline is not compensated by the slow American behavior increase. This may result in an overall decrease in cultural participation (such as socializing with friends, watching television, going to concerts, etc.). This period of a relative cultural vacuum (corresponding approximately to years 8–10 following immigration) warrants further examination. It may be a manifestation of cultural ambiguity, confusion, isolation, and alienation, and thus mark a period of heightened vulnerability to stress and result in mental and/or other health problems (Miller, Sorokin, Wang, Choi, Feetham, & Wilbur, 2006). The results for these two behavioral measures also suggest that by the 12th year in the US, American and Russian behaviors are perceived to play an approximately equal role in the lives of these women. It is possible that when followed further in time American behavior

would become a predominant cultural behavior in this population, but longer follow up would provide more complete information.

In this study, language was explored in only one cultural dimension – English – because low variance and few if any changes over time were anticipated for Russian language in this sample of highly educated people who immigrated at midlife. Results of the perceived English language proficiency analyses did not demonstrate linear progression, as suggested by cross-sectional studies that indicate positive correlations between time in US and language proficiency. Rather, although English language scores progressed linearly for years 0–8, there was a significant if small curvilinear decline in years 9–12. One limitation of the study is the use of self-reported data, which reflected the women’s own perceptions of their language competence. It seems unlikely that, if measured by an objective standardized test, their ability to communicate in English would decline as they stay in the US longer. It is therefore possible that this decline represents their growing dissatisfaction with their progress in the English language. The women were highly educated in their country of origin, and many of them occupied advanced professional positions. As they establish their lives in the US, they may begin to perceive their language ability as inadequate to meet their professional and other life standards, which may be growing at a faster rate than their ability to communicate in English. Moreover, they may become aware of a growing cultural gap between themselves and younger generations in their families, in which language differences may play an important role.

The value of cultural generativity was also measured in only one cultural dimension – Russian – because it was assumed that the American culture is still foreign for this sample of recent immigrants. The three other acculturation components progressed toward American and away from Russian culture. Change in the value of cultural generativity appears counter intuitive insofar as its positive curvilinear growth seems to progress against the current of acculturation. This finding, however, may be construed by considering the women’s cultural backgrounds in the FSU. They come from a Communist country where, despite a multicultural façade, institutionalized mono-cultural dominance was practiced. Many of these women, in fact, left their country to escape institutional anti-Semitism — a form of cultural and religious oppression. It is possible that as their involvement in American culture increases, multiculturalism as a gradually acquired positive American concept is accompanied by an increase in appreciation for their own original culture.

The growing interest in transmitting and preserving Russian culture in their families may also be attributable to the rising awareness of rapidly progressing acculturation in younger generations, which may widen the cultural generational gap and lead to the loss of Russian culture. In Russia, they took this culture for granted, and now they realize that an effort is needed to maintain it. Nevertheless, the trajectory model fit for Russian cultural generativity was relatively poor compared to other three acculturation components, and these results should be interpreted cautiously.

There are several limitations to this study that restrict generalization of the results. The volunteer sample may not be representative of the wider Russian-speaking community. Experiences of cultural pattern change are likely to differ for other ethnic and racial groups as well. The participants arrived in the US as midlife women during the 1990s. Therefore, their experiences may not reflect cultural transformations for other age groups, and this cohort may not be representative of earlier cohorts of Russian immigrants. The women were followed for only four years, and a longer period of time would allow more accurate mapping of acculturation trajectories over time. Finally, the measurement of acculturation components was not exhaustive, and only the behavioral component was explored in both American and Russian cultural dimensions.

Examination of the trajectories of four components of acculturation demonstrated differences in their directions, rates of change, and relationships to one another. Although studies that use proxy measures such as length of residence assume a linear increase over time, the findings suggest that more careful consideration of the differences among the components may produce a more complex picture of acculturation change. Acculturation measurement using integrated instruments or composite scores may also miss these dynamic changes, and make it difficult to identify or track predictors of health or other outcomes. Although we know that different scores on selected components are associated with differences in health and adaptation, we do not know whether differences in acculturation profiles or patterns are associated with similar outcomes. In other words, two people can have similar scores on language but different behavior scores; the combination may produce different experiences and implications.

Our findings emphasize the complexity of the concept of acculturation and the importance of choosing instruments that will examine this process appropriately. Instrument selection should be driven by the purpose of the study, and for some studies a proxy indicator or integrated composite measure might be suitable. At other times, however, these measures might obscure identification of long-term patterns and relationships among the separate components of acculturation and prevent discovery of the impact of a specific component on health or other outcomes. Further longitudinal examination of acculturation components is recommended to determine how differences in profiles and trajectories may aid in the development of targeted, culturally sensitive interventions for immigrant populations.

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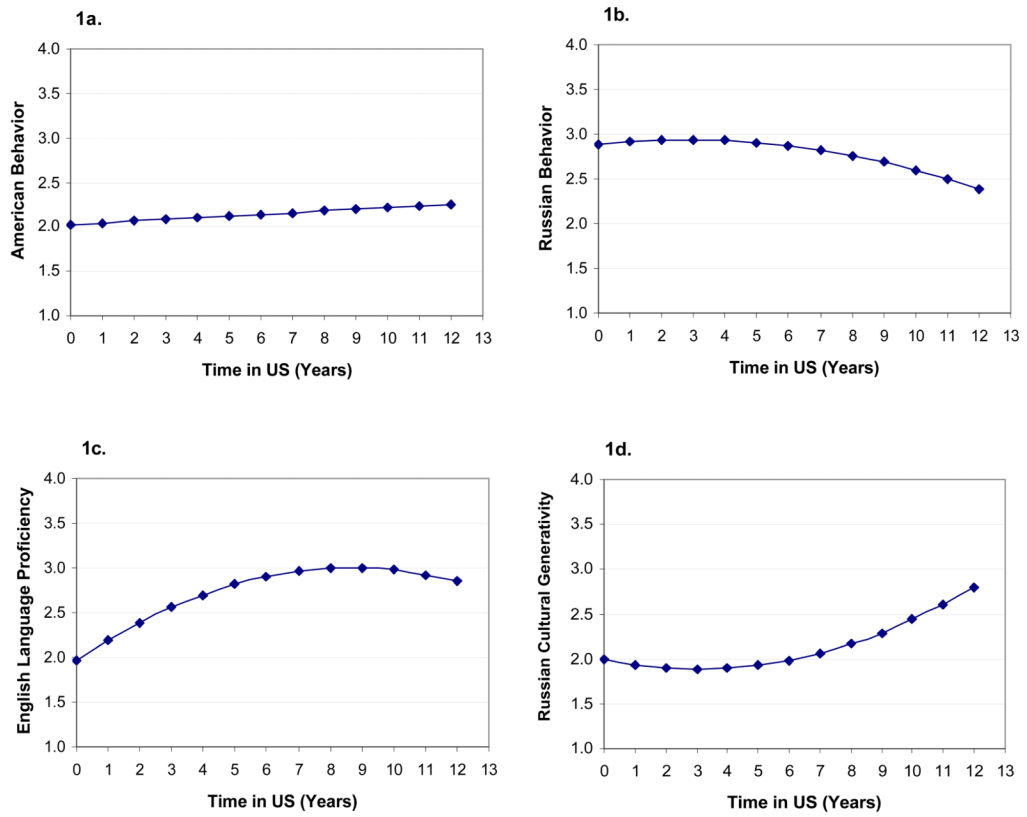


Figure 1. Changes in Acculturation by Time in the United State for Immigrant Women from the Former Soviet Union

Table 1

Demographic Characteristics of the Sample at Round 1 (N = 226).

Characteristics	Mean (SD)
Age at interview	56.8 (8.58)
Number of years in the US	3.38 (8.58)
Age at emigration	<u>53.3 (8.46)</u>
	<u>N (%)</u>
Education	
Less than college education	59 (26.1%)
Graduate of college or greater	167 (73.9%)
Religion/ethnicity in former Soviet Union	
Jewish	166 (73.5%)
Russian, Ukrainian, or Other	60 (26.5%)

Table 2

Pearson Correlations Among Age, Time in US, and Acculturation Scores by Four Rounds of Data Collection¹

	Age	Time in US	American behavior	Russian behavior	English language proficiency
Round 1					
Time in US	0.186				
American behavior	-0.259	0.250			
Russian behavior	0.397	0.232	-0.290		
English language proficiency	-0.303	0.394	0.536	-0.151	
Russian cultural generativity	-0.113	-0.015	0.148	-0.139	0.091
Round 2					
Time in US	0.185 ¹				
American behavior	-0.333	0.230			
Russian behavior	0.382	0.134	-0.403		
English language proficiency	-0.353	0.283	0.542	-0.296	
Russian cultural generativity	0.015	0.154	0.094	-0.146	-0.035
Round 3					
Time in US	0.182				
American behavior	-0.300	0.249			
Russian behavior	0.382	0.121	-0.310		
English language proficiency	-0.377	0.192	0.523	-0.221	
Russian cultural generativity	0.006	0.161	0.177	-0.168	0.116
Round 4					
Time in US	0.184				
American behavior	-0.327	0.201			
Russian behavior	0.379	0.035	-0.259		
English language proficiency	-0.456	0.112	0.532	-0.204	
Russian cultural generativity	0.001	0.220	0.212	-0.151	0.066

¹ Correlation coefficient bolded indicates significant correlation ($p < .05$).

Table 3

Multivariate Mixed-Effects Growth Curve Model of Acculturation¹

	American Behavior			Russian Behavior			English Language Proficiency			Russian Cultural Generativity		
	B	SE	p	B	SE	p	B	SE	p	B	SE	p
Intercept	2.024	0.050	<.0001	2.890	0.064	<.0001	1.967	0.062	<.0001	1.993	0.095	<.0001
Age (center) (linear)	-0.023	0.003	<.0001	0.021	0.003	<.0001	-0.034	0.004	<.0001	-0.004	0.004	0.3202
Time in US (linear)	0.019	0.008	0.024	0.035	0.023	0.122	0.239	0.020	<.0001	-0.070	0.037	0.0593
Time in US (Quadratic)	--	--	--	-0.006	0.002	0.002	-0.014	0.002	<.0001	0.011	0.003	0.0009
Fit Statistics												
Chi-square (df)	454 (6)			418 (8)			698 (1)			140 (1)		
P > Chi-square	<.0001			<.0001			<.0001			<.0001		
Covariance structure	Unstructured			Unstructured			Compound Symmetric			Compound Symmetric		

¹ Unstandardized coefficients B (with standard errors) for final model (in upper half) and fit statistics for baseline model (intercept only) and final (linear or non-linear) model (in lower half).