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Running head: WELL-BEING AMONG IMMIGRANTS

Somatic and Emotional Well-Being among Turkish Immigrants in Belgium: Acculturation or

Culture?

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Abstract

The present studies investigate differences in well-being between Turkish immigrants, Belgian majority members, and Turkish majority members. Furthermore, the relationships between two acculturation dimensions (adaptation and maintenance) and well-being is investigated within the immigrant group. In a first study, somatic well-being is studied in a sample of 519 Belgian majority members, 229 Turkish immigrants, and 232 Turkish majority members. Turkish immigrants reported the most somatic complaints, followed by Turkish majorities, and Belgian majorities. No relationships with acculturation were found. In a second study, emotional well-being (sadness/anxiety, anger, and positive emotions) was investigated in 519 Belgians, 151 Turkish immigrants, and 200 Turkish majority members. No differences were found for sadness/anxiety. Turkish majority members report less anger than the other two groups. For positive emotions, Turkish majority members score the lowest, followed by the Turkish immigrant group and the Belgian majority members. In the immigrant group only adaptation was associated with more positive emotions. Both studies demonstrate that indices of well-being behave differently in cross-cultural comparative research.

Keywords: Acculturation, Well-being, Somatic complaints, Negative emotions, Positive emotions, Turkish immigrants

Somatic and Emotional Well-Being among Turkish Immigrants in Belgium:

Acculturation or Culture?

The main reason why people move into another country in order to settle down permanently is to search for a better life (Evans, 1987). However, this does not always go without a hitch. It has been found repeatedly that immigrants have more problems with their health and psychological well-being compared to members of the culture they have settled in (Sam, 2006). Wiking, Johansson, and Sundquist (2004), for example, found that the self-reported health of Turkish and Iranian immigrants was much lower than that of Swedish majority members. Farooq, Gahir, Okyere, Sheikh, and Oyebode (1995) investigated the frequency of somatic complaints among Asian and Caucasian patients in Britain. The study concluded that Asians reported significantly more somatic symptoms than Caucasians. Janssen et al. (2004) found similar results with Turkish adolescents in the Netherlands. The Turkish immigrant group reported more social problems, cognitive problems, depression, and anxiety compared to the Dutch group. Recently, Leveque, Lodewyckx & Vranken (2007) studied anxiety and depression within the two largest non-European immigrant groups in Belgium, namely Turks and Moroccans. They found that depressive symptoms and generalized anxiety as a syndrome were more prevalent in these two immigrant groups than in the Belgian group.

Although decreased well-being among immigrants can be considered to be a robust and well-validated finding, there are at least three major issues that deserve further attention. The first one is related to measurement. Most studies compare average scores on well-being and psychopathology scales without checking equivalence despite of clear indications of measurement problems, especially with the somatic items. The second issue is that most of these studies do not consider individual differences in acculturation within the immigrant group and, if they do, they do not take into account the bidimensional nature of acculturation

(the two dimensions being adaptation to the host culture and maintenance of the origin's culture). The third issue is that virtually all research in this domain compares immigrant groups with the host majority group. By precluding a sample from the immigrant's country of origin, an explanation in terms of acculturation can not be disentangled from an explanation in terms of the culture of origin. In the present paper, we focus on these three issues for the investigation of (un)well-being among Turkish immigrants in Belgium.

Equivalence and Bias

Most research on immigrant well-being focuses on syndromes like anxiety and depression (Bhugra, 2003; Levecque, et al., 2007; Van der Wurff et al., 2004) or on health in general (e.g. Farooq et al., 1995; Janssen et al., 2004; Wiking et al., 2004). This means that scales like the Beck Depression Inventory (BDI; Beck, Steer, & Garbin, 1988), General Health Questionnaire (GHQ; Goldberg & Williams, 1988), Symptom Checklist-90-R (SCL-90-R; Derogatis, 1994) or Center for Epidemiological Studies – Depression (CES-D, Schroevers, Sanderman, van Sonderen, & Ranchov, 2000) are administered to assess whether immigrants experience more syndromes such as depression, somatization, or generalized anxiety. Some instruments even infer psychological problems from low scores on items for positive emotions. For instance the Spielberger State-Trait Anxiety Scale contains both items referring to anxiety and to positive feelings which are negatively keyed (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983).

These instruments are often developed in a Western context without their equivalence being checked for non-Western groups. They may therefore give a false interpretation of well-being differences. The main problem is that they entangle emotional and somatic well-being items, in spite of strong evidence that especially somatic complaints are reported more often by non-Western groups (e.g., Diefenbacher & Heim, 1994; Gureje, 2004; Minhas & Nizami, 2006; Rao, Young, & Raguram, 2007). Ulusahin, Basoglu, and Paykel (1994), for instance,

found higher ratings of core depressive symptoms (e.g., sad mood, loss of interest) among British outpatients in comparison to Turkish outpatients. In turn, in Turkey the somatization ratings (e.g., fatigue, headache) were significantly higher than in Britain. Furthermore, research has demonstrated that these instruments are not equivalent (Lonner & Ibrahim, 2002). For instance, research with the CES-D has found that somatic items are biased, and thus inappropriate for conducting cross-cultural research (Iwata, Turner, & Loyd, 2002).

Due to these clear indications that entangling somatic and emotional items- as is done in "classical" well-being instruments- is not suitable for cross-cultural comparative research, the present research treats somatic complaints and negative and positive emotions as separate elements of well-being. Moreover, only those scales in which equivalence is demonstrated are considered for further analyses.

Bidimensional Acculturation Model

Many studies treat acculturation as a one-dimensional construct going from a strong orientation towards one's heritage culture to a strong orientation towards the host culture. Studies using this one-dimensional approach found, for instance, that Korean immigrants in the US reported more depression when they did not have a good relationship with the US community (Oh, Koeske, & Sales, 2002). Scores on the GHQ of Turkish immigrants, living in the Netherlands, also indicated that Turkish migrants have a higher chance of scoring above the cut-off score for mild psychiatric disorder when they lack interaction with majority members or people in a different social situation (Bengi-Arslan, Verhulst, & Crijnen, 2002). A similar finding was found in a Dutch study with Ghanaian immigrants who reported more health symptoms when the acculturation process was experienced as more distressing due to acculturation difficulties (Knipscheer, De Jong, Kleber, & Lamprey, 2000). Overall these results indicate that immigrants who are more oriented towards their new host culture experience less depression, anxiety, and somatic complaints. The one-dimensional approach

to acculturation in well-being research, however, has been severely criticized because it may give a too narrow view on the interrelations between acculturation and health (e.g., Salant & Lauderdale, 2003).

To study inter-individual differences in acculturation, we rely on the bidimensional acculturation model of Berry (1997), which is the dominant model in cross-cultural psychology. According to this model adaptation to the majority culture does not preclude maintenance of one's own ethnic group culture. It is based on two basic questions each immigrant is confronted with, namely (1) to what extent do I value and affiliate with my culture of origin (cultural maintenance) and (2) to what extent do I have contact with and do I participate in the dominant culture (cultural adaptation). By combining the answers to these two questions, four acculturation styles are distinguished, namely integration, assimilation, separation, and marginalization. Integration means that adherence to the host culture as well as cultural maintenance are important. Assimilation is an absorption into the host culture with a loss of the culture of origin. Separation means that the original culture is maintained and that the relationship with the host culture is considered unimportant. Marginalization refers to a loss of the culture of origin, without connecting to the new culture.

According to this bidimensional acculturation model both cultural adaptation and cultural maintenance are supposed to reduce acculturative stress (Berry & Sam, 1997). For instance, Curran (2003) found that integration was the most successful strategy to achieve well-being. Ying (1995) also found that a bicultural orientation (integration) predicts lower depression, as measured by the CES-D, and more positive and less negative affect, as measured by the Affect Balance Scale (a scale that assesses the affective state in the past few weeks).

Thus, immigrants who score high on both dimensions (integrators) are expected to report the lowest level of acculturative stress, while immigrants who score low on both

dimensions (marginalizors) would score highest on indicators of acculturative stress. The immigrants who score high on one and low on the other dimension (assimilators, separators) would be situated in-between.

Culture or Acculturation

By comparing the immigrant with the host country group, an important alternative explanation of the elevated immigrant scores is overlooked, namely a cultural explanation (Diener, Oishi, & Lucas, 2003). It is possible that the immigrant's lower well-being is caused by cultural differences in distress and well-being (such as, for instance, cultural differences in the proneness to positive and negative emotions), rather than by acculturative processes. Cross-cultural research on somatic complaints, depression, anxiety, as well as on well-being in general, indicates that cultural factors (such as the difference between individualistic and collectivistic cultures and the country's wealth) may be a plausible alternative explanation.

Somatic complaints research has shown that Non-Western cultures report more somatic symptoms than Western cultures (e.g., Gureje, 2004; Minhas & Nizami, 2006; Rao et al., 2007). One explanation, which is often suggested, is that Western cultures apply a mind-body dualism in their health care, whereas in other parts of the world, this distinction is far from obvious (Kirmayer & Young, 1998). Therefore, non-Western cultures are thought to "somatize" their distress, whereas Western cultures have the tendency to "psychologize" (Keyes, & Ryff, 2003).

With respect to emotions, substantial differences between cultural groups in life satisfaction and affective well-being have been observed, with Western cultural groups reporting the most life satisfaction and affective well-being (Diener et al., 2003; Scollon, Diener, Oishi, & Biswas-Diener, 2004). One of the most promising explanations that accounts for differences in well-being is wealth and related predictors (Diener, E., Diener, M., & Diener, C., 1995). The correlation between wealth of countries and ethnic groups and well-

being was found to be positive and remarkably high (Diener & Biswas-Diener, 2002).

Moreover, Van Hemert, Poortinga and Van de Vijver (2007) found that more stable societies

(in terms of the number of years the country is in a stable democracy during the past 75 years)

express more positive emotions. They have also demonstrated in their meta-analysis that

negative emotions are experienced less frequently in individualistic countries (like Belgium)

than in collectivistic countries (like Turkey). One of the main reasons may be that negative

emotions influence life satisfaction more in individualistic cultures, and that individualistic

cultures therefore try harder to avoid them (Kuppens, Realo, & Diener, 2008). Thus, based on

these cross-cultural findings it can be expected that Turkish immigrants, who originate from a

less wealthy country than Belgium, score higher on measures of distress and lower on

indicators of well-being.

This explanation does not exclude the presence of additional strains due to

acculturation. It has been argued that immigrants experience particular problems because of

the acculturation process (Berry, Kim, Minde, & Mok, 1987). For instance, migrants often

have a lower SES than majorities (e.g. Hovey, 2000), which results in reduced occupational

status, worse housing conditions, lower educational level, and health deteriorating behavior

(e.g. Reitz & Sklar, 1997). Furthermore, immigrants face more discrimination on the labor

market as well as in daily life (e.g., Gill & Matheson, 2006; Saboonchi & Lundh, 2003).

However, the impact of these strains cannot be convincingly demonstrated by comparing

immigrants with the host majority group. To interpret decreased well-being scores in terms of

acculturative stress immigrants should report less well-being than both the host and the

heritage cultural groups. Hence, we expect Turkish immigrants to report the lowest levels of

well-being, followed by the Turkish majority group (living in Turkey), and the Belgian

majority group (living in Belgium).

Research goals

The present research has three goals: (1) to study differences in well-being in an unbiased way; (2) to relate somatic complaints, positive and negative emotions to inter-individual differences in maintenance of the own culture and adaptation to the host culture within the immigrant group; and (3) to compare the immigrant group with both the host and the heritage culture. These three goals are pursued in two studies. The first study focuses on somatic complaints (somatic well-being). The second study investigates whether the results of the first study can be generalized to positive and negative emotions (emotional well-being).

Study 1: Somatic Well-being

Method

Participants

Three groups of participants took part in the study, namely (1) 519 Dutch-speaking Belgian adults belonging to the majority group; 50.4% female, with an average age of 34.1 (range 2-51), (2) 229 Turkish immigrant adults; 38.5% female, with an average age of 32.3 (range 18-56) and (3) 232 Turkish adult members of the majority, living in Turkey; 57.2% female with an average age of 30 (range 18-57). All participants were employed at the time of study, the average education level differed between the groups ($\chi^2(8) = 324.638$; $p < .001$): Turkish majorities had the highest proportion of high educated adults (college or university, 60.8%), and the lowest proportion of low educated adults (not finished high school, 6.6%). In the Belgian majority sample 42.3% was high educated and 34.2% low educated. In the Turkish immigrant sample, the highest proportion of low educated (48.9%) and the lowest proportion of high educated (18.2%) participants was found.

Measures

Ghent Multidimensional Somatic Complaints Scale. This scale consists of 18 somatic complaints for which people have to indicate how often they have experienced them during

the last 30 days on an eight point Likert scale ranging from 0 (never) to 7 (all the time). This scale has proven to have a stable five factorial structure in Belgium and Turkey (Beirens & Fontaine, 2008). The five factors are pain symptoms (three items), cardio-respiratory symptoms (four items), gastro-intestinal symptoms (four items), temperature regulation (three items) and fatigue (four items). Because the factors are highly intercorrelated, only one general factor will be considered in the present study. Cronbach's α for this scale ranged between .89 (Belgian majorities) and .94 (Turkish immigrants).

Acculturation. A 16-item acculturation scale was administered. This scale was based on the bidimensional framework of Berry (1997). The items of this instrument focus on self-perceived knowledge and behavior. The 16-item scale captures five general acculturation themes: (1) language skills, (2) cultural knowledge, (3) cultural activities, (4) behavioral rules, and (5) social relations and friendship (Groenvynck, Beirens, Arends-Toth & Fontaine, 2006). To avoid psychometric problems due to so called double-barreled items or questions which incorporate two ideas into one item (e.g., Arends-Toth & Van de Vijver, 2006; Rudmin & Ahmadzadeh, 2001) the instrument does not measure the four acculturation styles separately, but focuses on the two underlying acculturation dimensions: cultural adaptation (the relationship with the host culture, 8 items) and cultural maintenance (the relationship with the heritage culture, 8 items). By means of confirmatory factor analysis, the authors were able to demonstrate that this scale complied with stringent psychometric requirements of structural equation models. Moreover, the two factors were internally consistent with Cronbach's α values for both dimensions exceeding .80. Immigrants were instructed to indicate to what extent they agreed with each item on a 6-point scale ranging from 1 (totally agree) to 6 (totally disagree). In the present study, reliability (Cronbach's α) was .82 for the adaptation scale and .86 for the maintenance scale.

Procedure

For the data from the Belgian group, psychology students administered the questionnaire to the Belgian participants. Data from the immigrant sample were collected by two students as part of their master thesis (Verhaegen, 2007; Vodenitcharov, 2006). In the first part of the immigrant sample (n=138) only somatic complaints were assessed. In the second part (n=91) both somatic complaints and behavioral acculturation were assessed. The frequency of somatic complaints was similar in the two parts of the immigrant sample: $t(218)$ = 0.842; ns. However, the first part of the sample was significantly older [$t(216)$ = -4.316; $p <$ .01], less educated [$\chi^2(2)$ = 9.338; $p <$ .01], and consisted of more men [$\chi^2(1)$ = 7.025; $p <$ .01]. The data from the Turkish majority members were collected by a Turkish research intern in collaboration with colleagues at the University of Istanbul.

Data Analysis

In a first step, the equivalence of the somatic complaints scale across the three groups was investigated. We relied upon the bias and equivalence framework as it has been developed in cross-cultural psychology (e.g., Fontaine, 2005; Van de Vijver & Leung, 1997). The equivalence framework identifies four major conditions for the scores to be directly comparable across cultural groups. First, the items have to be relevant and representative for the field in each of the ethnic groups (equivalence of domain representation). Second, in each of the ethnic groups each of the items has to be a non-trivial indicator of the intended construct (structural equivalence). Third, an observed score difference within each of the ethnic groups has to refer to the same score difference on the underlying latent construct (metric equivalence). Fourth, a particular observed score should refer to the same position on the underlying latent construct in each of the ethnic groups (full score equivalence). These four types of equivalence have to be satisfied jointly to directly compare groups with one another.

The first criterion of relevance and representativeness - which is mainly a judgmental criterion – has been taken into account in the construction of the scale (Beirens & Fontaine, 2008). Structural equivalence was investigated by comparing the congruence (in terms of Tucker's φ) of the somatic complaint factor. Tucker's φ values range between 0 and 1, with values above .90 indicating structural equivalence (Van de Vijver & Leung, 1997). Metric and full score equivalence were investigated by comparing three regression models for each item, namely the structural, the metric, and the full score equivalence model. In the structural equivalence model both non-uniform and uniform item bias were present. The item score was predicted by the "proxy" score (the sum total score of the frequency of the 18 somatic complaint items), the ethnic group, and the interaction between both. This model implies the presence of both uniform and non-uniform bias. In the metric equivalence model, the item score is predicted by the "proxy" score and the ethnic group. This model only implies the presence of uniform bias. In the full score equivalence model, no item bias is present. The item score is only predicted by the "proxy" score. Only the items which have full score equivalence are appropriate for further analysis. This means that items with uniform or non-uniform item bias are omitted.

The item bias analysis were based on a series of single step linear regressions. To avoid an undue increase in Type I error rate because of multiple testing, Cohen's f^2 was used. Cohen (1988) recommends the use of f^2 for multiple regressions to assess the effect size. An f^2 larger than .02 (which Cohen considers as the limit for a small effect size) was considered relevant (Cohen, 1988).

In the second step, the relationship with cultural maintenance and cultural adaptation was investigated by a multiple regression with the somatic complaint factor as dependent variable, relationship with the host culture and maintenance of the heritage culture as independent variables, and education level, age, sex, and generation as control variables.

In the third and last step, the four groups were compared by means of an ANOVA after the removal of the biased items. In addition, Tukey tests were conducted for the pairwise comparisons.

<div align="center">*Results and Discussion*</div>

Equivalence and Bias

To investigate structural equivalence, Principal Component Analyses were performed on the three samples. The scree plot clearly indicated a one-factorial structure in all three groups. The congruence (Tucker's φ) of this factor between the different groups was higher than .98, indicating structural equivalence.

To investigate metric and full score equivalence, the average score across the 18 items was taken as an indicator for the underlying somatic complaint factor. For fourteen items, the full score equivalent model was adequate: adding ethnic group or the interaction between ethnic group and proxy score did not substantially increase the fit of the regression model. For two items ("A heavy feeling inside your entire body" and "Gooseflesh"), the metric equivalence model had to be selected: ethnic group was a significant additional predictor. For two items ("Felt weakness or faint in your heart" and "Diarrhea"), the structural equivalence model had to be selected indicating a lack of both full-score and metric equivalence (See also Appendix A). Three of the four items with item bias were metaphorical descriptions of somatic complaints: "A heavy feeling inside your entire body", "Weakness or faint in the heart" and "Gooseflesh". Emotional metaphors are known to be culturally specific (Kövecses, 2003) and therefore caution is warranted when including these items in cross-cultural research. For the fourth item "Diarrhea", more research is needed to uncover the meaning of the item bias. Only the 14 items which had full-score equivalence in the three groups were used in further analysis.

Acculturation

There was neither a relationship of adaptation with somatic complaints ($\beta = .089$, $p =$ ns.), nor was there a relationship of maintenance with somatic complaints ($\beta = -.165$, $p =$ ns.).

Group Comparisons

The three samples differed significantly on the sumscore of the 14 unbiased items of the somatic complaint scale [$F(2, 956) = 29.015$; $p < .001$; partial $\eta^2 = .057$][1]. The Belgian majority members had the lowest score ($M = 1.52$) on somatic complaints, followed by the Turkish majority members ($M = 1.84$). The Turkish immigrant group had the highest score ($M = 2.16$). The effect remained significant after controlling for age, sex, and educational level [$F(2, 927) = 24.846$; $p < .001$; partial $\eta^2 = .051$]. Furthermore, because the educational level of the three samples differed significantly, additional analyses were performed in which group differences were investigated in matched samples of educational level. Again, groups differed in somatic complaints at low educational level [$F(2, 128) = 5.902$; $p < .01$], medium educational level [$F(2, 418) = 5.580$; $p < .01$], and high educational level [$F(2, 370) = 5.804$; $p < .01$] in the same way as when comparing the unmatched sample.

Tukey tests were significant for the difference between Belgian majorities and Turkish immigrants ($p < .001$) as well as Turkish majorities ($p < .001$); and between Turkish majority members and Turkish immigrants ($p < .01$). This result is in line with our expectations. First, a cultural effect was found. Both Turkish groups scored higher than the Belgian group, which is in line with the cultural hypothesis of "somatizing" versus "psychologizing" (Kirmayer & Young, 1998; Keyes & Ryff, 2003). Moreover, immigrants reported more symptoms than Turkish majority members, which may point to the experience of additional strain caused by the acculturation process (Berry et al., 1987).

We also observed significant effects for sex [$F(1, 927) = 27.681$; $p < .001$; partial $\eta^2 = .029$] with women scoring higher than men, educational level [$F(1, 927) = 16.469$; $p < .001$;

partial $\eta^2 = .017$] with less educated respondents scoring higher than high educated respondents, and age [$F(1, 927) = 7.857$; $p < .01$; partial $\eta^2 = .008$] with younger respondents scoring higher than older respondents, although this last effect was very small.

<div align="center">Study 2: Emotional Well-being</div>

<div align="center">*Method*</div>

Samples and Procedure

Three groups participated in the study. The Belgian sample was the same as in the first study. The immigrant sample consisted of 151 Turkish immigrants; 42.5% female with a mean age of 32.3 (range 18-65). Ninety-one participants were the same as in the first study. Sixty additional cases were collected as part of an unpublished master thesis (De Paepe, 2006); they only completed the emotion measure. The two immigrant groups did not differ on the dependent variables [$t(132)= .522$, ns for anxiety/sadness; $t(132) = -1.932$, ns for positive emotions, and $t(134) = .978$, ns for anger]. However, there were differences in demographics: the additional immigrant cases were older [$t(132) = -2.060$; $p < .05$], less educated [$\chi^2(2) = 8.227$; $p < .05$], and included more men [$\chi^2(1) = 6.286$; $p < .05$]. The Turkish majority group consisted of 200 Turks, living in Turkey; 50% were female, mean age being 34.6 (18-60).

All participants were employed at the time of study. However, the average education level differed between the three groups ($\chi^2(8) = 123.474$; $p<.001$): lower education levels (under high school) were more prevalent in Turkish immigrants (32%), compared to Belgian majority members (6.1%) and Turkish majority members (14.5%). For high education (college and university), the opposite pattern was observed: Turkish majority members (42.5%) and Belgians (40.3%) had the highest proportion of high educated people. The Turkish immigrant group had the lowest (28.7%).

Measures

Leuven Emotion Scale (LES). This scale was used to measure the frequency with which one experiences feelings and emotions. The LES contains 21 emotion subscales representative and relevant for the whole emotion domain for positive as well as negative emotions (Fontaine, Luyten, De Boeck, & Corveleyn, 2001)[2]. Each subscale consists of a number of synonyms for the same emotion (e.g. angry, furious and infuriated for the anger subscale) resulting in 93 emotion terms. Subjects were instructed to indicate how often they experienced each emotion on an eight point scale, similar to the scale used for the somatic complaints scale: 0 (never) to 7 (constantly). Reliability (Chronbach's α) of the LES-scales ranged from .63 (jealousy) to .89 (joy), with an average of .79.

For acculturation, the same scale as in the first study was used to investigate the relationships between the adaptation and maintenance dimension and emotional well-being.

Data Analysis

The equivalence of the emotion scale was tested in a similar way as for the somatic complaints scale in the first study. The groups were compared by means of a MANOVA with the unbiased emotion factors as dependent variables. In the last analysis, a multivariate multiple regression was performed with the emotion factors as dependent variables, the acculturation dimensions (adaptation and maintenance) as independent variables and education level, age, sex, and generation as control variables.

<div align="center">

Results and Discussion

</div>

Equivalence and Bias

To investigate structural equivalence, Principal Component Analyses were executed in the three groups on the 21 emotion subscales. The scree plots showed a three factorial structure in the three groups. The VARIMAX rotated solution in the Belgian majority sample was taken as a point of reference. The first factor could be interpreted as a sadness/anxiety

factor (with sadness, loneliness, and fear loading high on this factor), the second factor could be interpreted as a positive emotion factor (with enthusiasm, love, and joy loading high on this factor), and the third factor could be interpreted as an anger factor (with anger, disgust, and jealousy loading high on this factor). The structures of the other two samples were rotated to the Belgian sample. Table 1 shows the Tucker's φ values after orthogonal Procrustes rotation. All values were higher than .90, which justifies the conclusion that the three factors of the LES are structurally equivalent between the three ethnic groups.

[Insert Table 1 about here]

The identification of two negative emotion factors, namely anxiety/sadness and anger is interesting from a theoretical point of view: in psychopathology a broad distinction is made between internalizing and externalizing forms of pathology, where internalization refers to disorders in which distress is expressed inwards and externalization refers to disorders in which distress is expressed outwards. The outward distress is often expressed as anger (Krueger, 1999; Krueger, McGue, & Iacono, 2001). Because of their theoretical relevance, these two negative emotions factors will be treated separately.

Three of the emotions (namely compassion, guilt, and being hurt) had high cross-loadings in all three groups and were not included for the calculation of the scale scores. For the remaining 18 emotions, the corresponding scale score was taken as "proxy". In the full score equivalent model, the specific emotion was predicted by the corresponding scale score. In the metric equivalence model, the ethnic group was added and in the structural equivalence model, the interaction between the emotion scale and the ethnic group was added.

Depression and hate were the only emotions that were biased. Because they lacked full score equivalence, they were excluded from further analysis. It is also noticeable that the

largest bias effect was found for depression, an emotional state which is probably the most popular in research on immigrant well-being (Buhgra, 2003). The bias analyses clearly indicate that the responses to the items of the depression scale cannot be compared between the three cultural groups because they have, at least partly, a different meaning between the three studied groups. The study of Ulusahin, Basoglu, and Paykel (1994) suggest that the items of the depression scale may have a much more somatic connotation among Turkish and Turkish Belgian participants than among Belgian participants. For the other 16 emotion scales the f^2 values were lower than .02 and thus the full score equivalent model has been selected (See also Appendix B).

Based on these results, the sadness/anxiety score was computed on the basis of five emotions (loneliness, fear, nervousness, sadness, and shame), the positive emotion score was computed on the basis of seven emotions (enthusiasm, love, joy, pride, peacefulness, passion, and surprise), and the anger score was computed on the basis of four emotions (anger, irritation, jealousy, and disgust).

Acculturation

No significant relationships were observed of the two acculturation dimensions with sadness/anxiety, nor with anger. Only a strong effect was observed for positive emotions [$F(1, 76) = 13.773$, $p<.001$, partial $\eta^2 = .153$]: the more adapted, the more positive emotions were reported ($\beta = .449$).

Group comparisons

Significant differences were observed for anger [$F(2, 811) = 10.840$; $p <.001$; partial $\eta^2 = .026$] and for positive emotions [$F(2, 811) = 130.236$; $p <.001$; partial $\eta^2 = .243$]. Sadness/anxiety did not differ between groups [$F(2, 811) = 1.265$; ns; partial $\eta^2 = .003$][3]. Figure 1 shows the mean scores.

[Insert Figure1 about here]

After controlling for age, sex, and educational level, the effect of sadness/anxiety remains insignificant. This is not in line with our expectations. The partial η^2 of anger drops to .024, but remains significant [$F(2, 785) = 9.659$; $p < .001$]. The partial η^2 of positive emotions even slightly increases after the inclusion of control variables: partial $\eta^2 = .251$ [$F(2, 785) = 131.347$; $p < .001$]. Pairwise comparisons revealed a significant Tukey test for anger between Belgians and Turkish majority members ($p < .001$), as well as between Turkish immigrants and Turkish majority members ($p < .01$). The Turkish immigrants experience more anger than the Turkish majority members. However, the anger score of the immigrant group resembles the Belgian majority members.

For positive emotions, all pairwise comparisons were significant: Belgians reported more positive emotions than Turkish immigrants ($p < .001$) and Turkish majority members ($p < .001$). Moreover, Turkish immigrants reported more positive emotions than Turkish majority members ($p < .05$). This means that for positive emotions, there is a strong cultural effect. In addition and contrary to our expectations, immigrants experience more positive emotions than their counterparts from Turkey. Based on the acculturative stress hypothesis we had expected that the Turkish immigrants would score even lower than the Turkish majority group. However, this was not confirmed. On the contrary, although they reported less positive emotions than the Belgian majority group, they reported more positive emotions than the Turkish majority group. Rather than pointing to acculturative stress, it indicates that there is an improved emotional well-being in terms of positive feelings, compared to the heritage culture.

Because of sample differences in educational level, we also investigated group differences, matched for educational level. At low educational level, a significant difference

was only found for positive emotions [$F(2, 87) = 4.964$; $p < .01$], with Belgian majority members reporting the most positive emotions, followed by the Turkish immigrants and the Turkish majority members. At medium and high educational level, differences were observed for positive emotions in the same direction as for low educational level [$F(2, 376) = 58.843$; $p < .001$ and $F(2, 309) = 61.702$; $p < .001$ respectively] as well as for anger [$F(2, 376) = 7.407$; $p < .01$ and $F(2, 376) = 2.633$; $p < .05$ respectively], with Turkish majority members reported the least anger, followed by Belgian majority members and Turkish immigrants.

We also noticed significant effects for sex on anxiety/sadness [$F(1, 785) = 18.809$, $p < .001$; partial $\eta^2 = .023$] with women scoring higher than men; for age on anger [$F(1, 785) = 15.092$, $p < .001$; partial $\eta^2 = .019$] and positive emotions [$F(1, 785) = 24.230$, $p < .001$; partial $\eta^2 = .030$] with older respondents reporting both less anger and less positive emotions; and for educational level on positive emotions [$F(1, 785) = 7.226$, $p < .01$; partial $\eta^2 = .009$] with higher educated respondents having more positive emotions.

General Discussion

The present studies started from the well-established finding within the acculturation literature that the acculturation experience is stressful and leads to decreased well-being and increased psychopathology (Sam, 2006). We aimed at confirming these findings among Turkish immigrants in Belgium and contributed to the domain in three ways, namely by (1) carefully looking at issues of bias and equivalence, (2) relating individual differences in (un)well-being within the immigrant group to differences in adaptation and maintenance, and (3) comparing the Turkish immigrant group to majority members from both the receiving and the heritage cultural group. The results only partially confirm previous findings. As expected, the Turkish immigrant group reports more somatic complaints than both Turkish and Belgian majority members. However, they neither report more feelings of anxiety and sadness than Turkish and Belgian majority members, nor do they report more feelings of anger than

Belgian majority members. Moreover, against the expectation, they report more positive feelings than Turkish majority members.

Equivalence and Bias

Most psychological instruments for assessing (lack of) well-being and psychopathology [e.g. the CES-D (Schroevers et al., 2000), the BDI (Beck et al.,1988), The SCL-90-R (Derogatis, 1994), and the Mood and Anxiety Symptom Questionnaire (Keogh & Reidy, 2000)] are applied in different cultural groups and used for cross-cultural comparison, often without much attention to equivalence and bias. Furthermore, the few previous studies that consider equivalence and bias issues, found differential item functioning for somatic items in depression scales (e.g., Iwata et al., 2002; McHorney & Fleishman, 2006). However, the results of the present studies are more far-reaching than just the identification of a number of biased somatic items. The differential ethnical group differences on somatic complaints, positive emotions, anger, and anxiety/sadness indicate that the items do not co-vary in the same way at the cultural level compared to the individual level. In other words, at an individual level studies find strong positive correlations between somatic complaints, anxiety/sadness, and anger (e.g. De Gucht, 2002); however, in the present study, the Turkish majority group reports more somatic complaints, the same levels of sadness and anxiety, and less anger compared to the Belgian majority group. The fact that the somatic complaint scale and the three emotion scales do not covary in the same way at the individual and at the cultural level of analysis could point to a lack of isomorphism between both levels (Fontaine, 2008). At the cultural level, the social norms concerning the expression of emotions may be independent from those of somatic complaints whereas at the individual level, the two are closely linked. However, future research should include more countries and investigate this hypothesis by means of multilevel analysis.

In sum, measurement bias has to emerge when "classical" instruments that work with somatic as well as affective items are used in cross-cultural research. Rather than comparing total scores between cultural groups on these instruments, cross-cultural comparisons should differentiate each of the underlying dimensions of well-being and psychopathology.

Acculturation within the Immigrant Group

Contrary to the expectation that both high maintenance and high adaptation would be beneficial in the immigrant group, no significant effects were observed between acculturation and the four indices of (un)well-being. One notable exception is the large positive relationship between adaptation and positive emotions. There are a number of possible explanations for these results.

First, Ward and Kennedy (1994) have demonstrated that acculturation style and sociocultural adjustment are related yet conceptually different and yield different effects. Since the acculturation scale, used in the present studies, did not ask about preferences, attitudes, or identity, but about self-perceived knowledge and behavior, this scale may resemble measures of sociocultural adjustment rather than acculturation styles. Maybe the effects would be different if the acculturation measure was focused on preferences, attitudes, and identity, which are intrinsically more "affectively charged".

Second, the present findings could be explained by the immigrant sample, which consisted of adults who lived and worked in a predominantly Belgian context. Knowledge of the new language and cultural rules, having Belgian friends and following the Belgian media, might be particularly beneficial in such a context. It could be the case that the maintenance dimension becomes more salient in samples of unemployed or home-working immigrants. They depend more on the support from their family and their heritage social network, and it might be much more functional for their well-being to know the heritage language and

cultural rules, have friends in the immigrant group, and follow the media of the heritage culture.

Finally, it can be noted that the present findings are not so exceptional in the acculturation literature. A number of previous studies have found no or only minor effects of acculturation. Mak and Zane (2004), for instance, found no effect of acculturation on somatic symptoms. Bengi-Arslan et al. (2002) found no effect of host language fluency on well-being, and Knipscheer et al. (2000) found no effect of length of stay and only minor effects of social adaptation.

Acculturation versus Culture

At first sight, results of both our studies may seem contradictory. In the first study, we found substantial group differences for somatic complaints. In the second study, we found no differences between the three samples for anxiety-sadness. This is not in line with previous research (e.g., Janssen et al., 2004; Levecque et al., 2007). Because we ruled out item bias, prior to the actual analysis, results cannot be explained by a lack of equivalence. However, there are a number of other plausible explanations.

First, in line with the hypothesis that there is a tendency towards psychologization in Western cultures and somatization in non-Western cultures (Kirmayer & Young, 1998), lack of well-being may be expressed more in the form of somatic complaints in non-Western cultures. From this perspective, the Turkish immigrant group somatizes even more than the Turkish majority group presumably due to strains caused by the acculturative process. Studies of immigrants in the Netherlands indicated that immigrant patients often first report somatic symptoms, but upon closer examination the underlying problem turns out not to be somatic (Knipscheer et al., 2000).

Second, the socio-economical status may have played a role. Lower SES of immigrants compared to majorities (Hovey, 2000), results in reduced occupational status,

worse housing conditions, lower educational level and more health deteriorating behavior (Reitz & Sklar, 1997). Recent studies in Belgium have shown that Turkish immigrants in Belgium indeed have less access to health care, worse labor circumstances, and worse housing conditions (Martiniello, 2003; Tielens, 2005). These factors could lead to a lower health status of immigrants, and a subsequent increase in reported somatic symptoms. From this perspective, the increase in somatic complaints is more of a physical problem, and therefore no emotion differences are observed. In international research, it has indeed been demonstrated that immigrant groups have more physical health problems than majority members (Sam, 2006). Finally, it is possible that the social norms for expressing somatic complaints and emotions differ in such a way that the expression of emotions is more under the normative control than the expression of somatic complaints [4]. When immigrants are employed they often come into frequent contact with the emotional expression of the majority group, whereas somatic complaints are not expressed on a frequent basis in a working environment.

No specific predictions were made with respect to anger, which was seen as a part of negative emotions. Since a clear anger factor emerged at the individual level, and differed between cultural groups, this factor is discussed separately. The fact that the Turkish majority group scores substantially lower on the anger factor is in line with the literature on independent versus interdependent self (e.g. Markus & Kitayama, 1991): emotions in which the person turns her- or himself away from others, like anger, are more prevalent in independent and less prevalent in interdependent cultural groups. Turkey, which scores high on embedded values (Schwartz, 2006), can be expected to be more characterized by an interdependent self-construction. The fact that the Turkish immigrant group reports as much anger as the Belgian majority group is a more complex finding. We can think of two explanations. First, acculturative stress may account for differences between Turkish

immigrants and Turkish majorities. Increased anger might point to an externalization reaction to the strain caused by the acculturation process. The other explanation is discrimination, which is a very important elicitor of anger, especially when it is viewed as unjust (Saboonchi & Lundh, 2003; Gill & Matheson, 2006). Majority members are seldom confronted with situations of discrimination, while members of a minority group are likely to be confronted regularly with it. This could account for increased anger in immigrants.

The strongest effect in the present study is on positive emotions. As expected we find a culture effect. The Turkish majority group reports substantially fewer positive emotions than the Belgian majority group. This confirms previous research on life satisfaction and well-being (e.g. Diener, E. & Diener, M., 1995; Oishi, Diener, Lucas, & Suh, 1999). At cultural level, wealth (in terms of Gross Domestic Product, GDP) is one of the main correlates of country level well-being. The lower the GDP of a country, the less opportunity people have to create stimulating and interesting environments in which they can develop themselves (for instance by striving for their personal goals or making their own decisions) and in which positive emotions are elicited (Diener et al., 1995).

Limitations

The first limitation of the present study is that participants with higher educational levels were disproportionally represented in the samples of Turkish majority members. This can be attributed to the higher accessibility of participants with higher education when using convenience sampling as in the present study. Since educational level does have an impact on the indices of (un)well-being the disproportionate representation of higher educated participants has to be taken into account. In the present studies, its effect has been controlled statistically. Moreover, the same results were found when matching the samples on educational level. Still, since educational level relates also to many other aspects of socio-

economical status that can affect (un)well-being, a more representative sample would have been desirable.

The second limitation is the cross-sectional nature of the studies; no conclusions can be made regarding the causality of the relationships. Ideally, both the immigrant group and the two majority groups would have to be studied longitudinally in order to disentangle cultural changes in majority groups from genuine acculturative changes in the immigrant group.

The final limitation is that the current samples consist only of working adults. The present studies are part of a larger research project that focuses on work-related well-being of immigrants in the Belgian society. The findings of the present studies cannot be necessarily generalized to the Turkish immigrant, the Belgian, and the Turkish adult general populations. Because access to the Belgian labor market is a problem particularly for non-EU immigrants in Belgium, the observed relationships might be different in unemployed samples. It is very well possible that there is more evidence for acculturative stress among the unemployed immigrants.

Implications and Conclusions

The present findings indicate that functioning poorly is not just the opposite of functioning well. In the emotion literature there is clear evidence that the frequency of positive and negative emotions is indeed rather independent both at the individual (Diener, Smith, & Fujita, 1995) and the cultural level (e.g. Kuppens, Ceulemans, Timmerman, Diener, & Kim-Prieto, 2006). This implies that both aspects can coexist, and may be affected by different factors. Another important implication of the present study is probably that the acculturation experience may be less stressful than suggested by most studies. An increase in somatic complaints is counterbalanced by an increase in positive emotions. Insights into this

process might offer new opportunities to develop intervention and policy programs based on capacity building rather than on harm avoidance.

The necessity to include a reference sample from the heritage culture for acculturation research became clear in the present studies. Including the heritage majority group in addition to the host majorities as a point of reference makes a huge difference in terms of interpretation. Without the sample from the heritage culture, the lower score on the positive emotions scale of the immigrant group compared to the Flemish majority group would have been incorrectly interpreted as evidence for a lack of well-being of the immigrant group. Moreover, for the concept of acculturation - which refers to cultural change due to intensive cultural contacts - the heritage culture is the main point of reference.

The most important conclusion of the present studies is that the acculturation process seems far less stressful than suggested by most of the previous acculturation research, at least for working immigrants. Evidence is found for both acculturative stress and acculturative gain. Future studies should give more attention for the constructive and positive aspects of psychological functioning in acculturation research. Immigrants come to another country to search for a better life (Evans, 1987), and despite the difficulties they encounter clear indications are found that they manage to succeed in this goal.

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Footnotes

[1] Group differences were also significant before exclusion of the four biased items: $F(2, 954) = 36.019$; $p < .000$, partial $\eta^2 = .070$. This indicates that item bias cannot account for group differences.

[2] Compared to the study of Fontaine et al. (2001), which used 76 items, 17 items have been added in order to cover the emotion domain more fully.

[3] With the inclusion of the biased emotions (depression in the sadness/anxiety scale and hate in the anger scale), results were: $F(2, 808) = 1.561$, *ns* , partial $\eta^2 = .004$ for sadness/anxiety and $F(2, 808) = 9.106$; $p<.001$; partial $\eta^2 = .022$ for anger. This means that omitting the two biased emotions did not affect results.

[4] We thank an anonymous reviewer for this suggestion.

Author Note

Figure caption

Figure 1. Mean Standardized Scores of Emotional Well-being Scales (Anxiety/Sadness,

Positive Emotions, and Anger) for Belgian Majorities, Turkish Immigrants, and Turkish
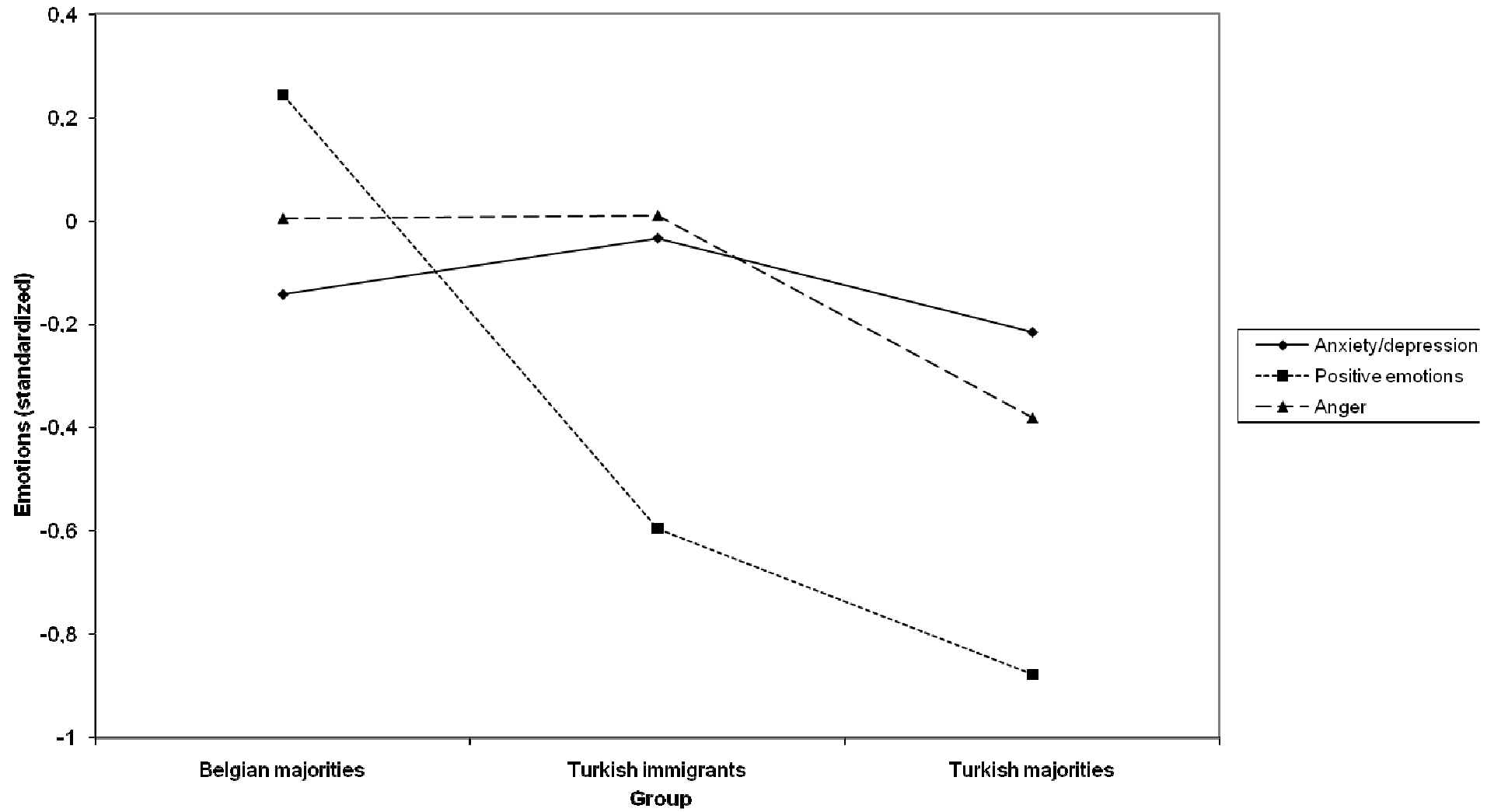
Majorities.

Table 1

Congruence Coefficients (Tucker's φ values) of Emotion Factors after Orthogonal Procrustes Rotation

Group 1	Group 2	Sadness/ Anxiety	Positive Emotions	Anger
Belgian majority	Turkish immigrants	.96	.96	.95
	Turkish majority	.91	.92	.94
Turkish immigrants	Turkish majority	.95	.92	.90

Appendix A

Bias Analysis of Somatic Complaint Scale

Items	f^2 Proxy[1]	f^2 Group	f^2 Interaction
severe headaches	.354	.005	.001
pain or tension in your neck or shoulders	.463	.004	.014
a feeling of tension (tightness) in your head	.643	.001	.003
the feeling of pressure or tightness of the chest or heart	.644	.001	.003
pain or discomfort in the belly (abdomen)	.769	.002	.001
a chocking feeling in your throat	.534	.001	.004
suffered from indigestion (problems with digesting)	.622	.012	.005
a swollen or bloated feeling in your stomach	.744	.012	.015
difficulties breathing. even when resting	.627	.001	.015
a heavy feeling inside your entire body	.899	.027	.002
felt a weakness or faint in your heart	.667	.003	.066
diarrhea	.301	.008	.031
warm or cold spells	.612	.003	.007
felt coldness in your body	.538	.007	.002
gooseflesh	.374	.031	.005
felt physical weakness somewhere in your body	.947	.003	.015
repeatedly a lack of energy	.987	.013	.010
felt tired, even when you were not working	.964	.005	.009

Note. [1] Proxy: sum frequency of all somatic complaint items

Appendix B

Bias Analysis of Emotions

Feeling	f^2 Proxy[1]	f^2 Group	f^2 Interaction
Enthusiasm	1.297	0.000	0.005
Peacefulness	0.653	0.002	0.002
Pride	1.064	0.003	0.007
Passion	0.886	0.012	0.005
Love	0.963	0.009	0.002
Happiness	1.770	0.001	0.002
Surprise	0.364	0.007	0.007
Depression	2.156	0.063	0.018
Loneliness	1.426	0.004	0.002
Fear	1.115	0.002	0.003
Sadness	1.616	0.006	0.008
Nervousness	0.809	0.016	0.003
Shame	1.118	0.017	0.004
Anger	1.258	0.011	0.008
Hate	2.078	0.010	0.027
Irritation	1.128	0.011	0.018
Disgust	1.295	0.003	0.002
Jealousy	0.753	0.001	0.001

[1] Proxy: sum frequency of the corresponding factor

Appendix C

Correlations Between Variables for the Turkish Immigrants

Variables	*M*	*SD*	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Sex[a]	0.500	0.503	1.000									
2. Age	29.224	8.061	.019	1.000								
3. Educational level	4.721	2.457	-.095	.029	1.000							
4. Generation[b]	0.453	0.501	-.257[*]	-.525[**]	.097	1.000						
5. Adaptation	3.948	0.825	-.124	.178	.387[**]	-.173	1.000					
6. Maintenance	4.415	0.901	-.064	.073	.190	-.078	.363[**]	1.000				
7. Positive emotions	3.228	0.788	.019	-.052	.334[**]	-.020	.428[**]	.126	1.000			
8. Sadness/anxiety	2.505	0.897	.007	-.144	.091	.010	-.124	-.124	.069	1.000		
9. Anger	2.463	0.866	.075	-.132	-.017	.062	-.103	.020	.151	.708[**]	1.000	
10. Somatic complaints	2.293	1.084	-.032	-.085	-.110	.036	-.074	-.099	-.009	.476[**]	.512[**]	1.000

Notes. [a] Dummy coded with reference level (1) man

[b] Dummy coded with reference level (1) second generation

$* p < .05; ** p < .01$