Change in Risk Factors for Eating Disorder Symptomatology in Malay Students Sojourning in the United Kingdom

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Abstract

**Objective:** The purpose of this investigation was to examine change in risk for eating disorders in higher education students sojourning in the United Kingdom (UK), as well as associations between such risk and experiences in the host culture. **Method:** Participants were 98 female students from Malaysia, who completed a measure of risk factors for eating disorder symptomatology (the Eating Disorder Inventory-3 subscales of drive for thinness, body dissatisfaction, and bulimia symptoms) at two time points: two months prior to beginning their sojourn in the UK (Time 1) and four months after the sojourn began (Time 2). At Time 2, participants also completed measures of sociocultural adjustment, cultural distance between home and host cultures, and perceived discrimination in the host culture. **Results:** Analyses indicated that, compared to scores at Time 1, participants had significantly higher drive for thinness (*d* = 0.64), body dissatisfaction (*d* = 0.54), and bulimia symptoms (*d* = 0.29) at Time 2. Poorer sociocultural adjustment and greater perceived discrimination significantly predicted greater risk of eating disorders at Time 2. **Discussion:** The stress associated with culture change may place sojourning students at risk for disordered eating. Further research is needed to determine the extent to which this risk is related to culture-change specifically, as opposed to a general set of factors associated with transition-related psychopathology more broadly.

*Keywords*: Culture-change; Eating disorders; Transmigration; Sociocultural adjustment; Malaysia

Change in Risk Factors for Eating Disorder Symptomatology in Sojourning Malay Students in the United Kingdom

Negative body image and eating disorders were historically characterised as culture-bound experiences, primarily afflicting women in high-income, industrialised, and Western societies (1). However, reports of high rates of negative body image and disordered eating globally have changed this perspective (2-3). To explain this development, some scholars have focused on the combined effects of modernisation, urbanisation, and Westernisation in shaping a globalised thin ideal (4), which in turn is associated with increased incidence of body image disturbances and disordered eating (1-2).

In addition, cultural change (e.g., via transcultural migration) has been associated with increased vulnerability to eating disorders (5). According to this hypothesis (6-7), eating disorders are more likely to develop because of the high levels of stress associated with cultural change. Studies of this culture-change hypothesis have generally returned supportive evidence. For example, in a qualitative study of Czech au pairs, it was found that sojourning abroad was an important factor in developing an eating disorder (8). Likewise, migration from Mexico to the United States has been associated with increased risk for binge eating disorder (9) and the prevalence of disordered eating is generally elevated in migrants (10-11). Cross-sectional studies have also suggested that female migrants to the United Kingdom (UK) have greater body image disturbance than women in the country of origin (12).

The present study examined risk factors for eating disorders in a sample of higher education students sojourning in the UK. Sojourners offer a useful sample in which to examine the culture-change hypothesis because they are likely to experience heightened “culture shock” as a result of the sudden loss of familiar signs, symbols, and social support (13). This culture shock is known to increase levels of stress, which in turn has a detrimental effect on the psychological well-being and academic performance of sojourning students (14-15).

More specifically, the present work focused on Malay students from Malaysia sojourning in the UK. Malaysia has experienced rapid economic liberalisation and industrialisation over the past three decades and the high degree of Westernisation introduced by these changes has led to the idealisation of thinness in sites of high socioeconomic status (16-17) and a concomitant rise in negative body image (18). At the same time, however, Malaysia retains a sense of national identity shaped in part in opposition to Westernisation, with the role of women in the public sphere circumscribed by patriarchal restrictions (17). Malaysia is also an ethnically heterogeneous nation (with a Malay majority and smaller populations of Chinese, Indians, and other indigenous ethnic groups), although studies indicate only small ethnic differences in negative body image (17,19). About a quarter of the 18-25 cohort pursues higher (tertiary) education, although a substantial portion do so overseas, with the UK the second-most popular destination after Australia (20).

Here, the hypothesis that culture change is associated with higher risk of eating disorders was examined by comparing scores before and after transmigration had occurred. Based on the review above, it was predicted that participants would report significantly higher levels of risk factors for eating disorders post-migration. As a further examination of the culture-change hypothesis, this study also examined the extent to which participants’ experiences in the host culture are associated with risk for eating disorders. Specifically, three facets of the sojourning experience were measured: sociocultural adjustment, cultural distance, and perceived discrimination. Sociocultural adjustment refers to the behavioural and cognitive factors that are involved in cultural learning and effective performance in a new environment (15), and poorer sociocultural adjustment is associated with increased stress and poorer adjustment in the host culture (21). Likewise, cultural distance (the perceived cultural distance between the home and host cultures) and perceived discrimination (experiences of discrimination in the host culture) are known obstacles to sociocultural adjustment, with higher levels being associated with greater difficulty in the transition process (22-23).

Previous work has shown that poorer sociocultural adjustment, greater cultural distance, and higher perceived discrimination are associated with poorer health status in sojourning Malay students in the UK (24-25). However, their associations with risk for disordered eating in the same population has not been previously investigated, which the present study sought to overcome. Based on the available literature, it was predicted that poorer sociocultural adjustment, greater cultural distance, and greater perceived discrimination would be associated with higher risk for eating disorders.

**Method**

**Design**

This study used a mixed longitudinal and cross-sectional design. Two months prior to beginning their sojourn in the UK (Time 1), participants completed a measure of risk factors for eating disorder symptomatology. This was repeated four months after the sojourn began (Time 2), when adjustment to the host culture could be expected to have plateaued (13,26). At Time 2, participants also completed the measures of sociocultural adjustment, cultural distance, and perceived discrimination described below.

**Participants**

Participants of the study were 98 female students from the state of Selangor, Malaysia, who began their first year in a UK higher education institution in September 2014. Participants ranged in age from 18 to 22 years (*M* = 18.35, *SD* = 0.75) and in self-reported body mass index (BMI) from 17.63 to 31.97 kg/m2 (*M* = 24.61, *SD* = 3.38). Of the sample, 44.9% attended a university in London, 23.5% in the East Midlands, 14.3% in in North West England, 9.2% in the West Midlands, and the remainder in some other location in the UK. All participants were of Malay ancestry and, by Malaysian constitutional law, all Malays are considered Muslims. Only Malay participants were recruited in order to ensure maximum homogeneity of sampling and because this group appear to have greater difficulties adjusting to life in the UK than Malaysians of other ethnic groups (20).

**Materials**

**Risk factors for eating disorders**. At Times 1 and 2, participants completed three subscales of the Eating Disorders Inventory-3 (EDI-3; 27), a self-report questionnaire widely used to assess risk factors for eating disorders. The three subscales were drive for thinness (EDI-DT; 7 items), body dissatisfaction (EDI-BD; 9 items), and bulimia (EDI-BS; 7 items). Garner (27) summarised scores on these subscales as representing general risk factors for eating disorders. Items were rated on a 5-point scale ranging from 1 (*Never*) to 5 (*Always*). Subscale scores were computed as the mean of items associated with each factor, such that higher scores reflect greater incidence of eating disorder symptomatology. These subscales of the EDI-3 have good factorial validity (27-28), excellent internal consistency and test-retest reliability (29), and good patterns of convergent and discriminant validity (27). In the present study, internal consistency coefficients for all subscales at both time points was very good (all Cronbach’s α ≥ .90).

**Sociocultural adjustment**. At Time 2, sociocultural adjustment was assessed by 18 items concerning the degree of difficulty participants faced in dealing with practical, social, and interpersonal communication problems in the past four months (24). All items were rated on a 5-point scale ranging from 1 (*Not at all*) to 5 (*Very much*). An overall score was computed as the mean of all items, with higher scores reflecting poorer sociocultural adjustment to life in the UK. This measure of sociocultural adjustment has adequate internal consistency and good patterns of convergent validity (24-25). In the present study, Cronbach’s α for this scale was .79.

**Cultural distance**. At Time 2, participants completed a measure of perceived cultural distance between the host and home cultures (21). This scale consists of 36 items that assess perceived distance in a range of everyday life situations, such as family life, gender relationships, and work habits. All items were rated on a 3-point scale (1 = *Less*, 2 = *Equal*, 3 = *More*). Responses indicating the perception of a difference between the two cultures were coded as 1 and the absence of difference was coded as 0 (21,24). An overall score was then computed as the mean of responses, with higher scores reflecting greater magnitude of perceived cultural difference. This scale has adequate internal consistency and good patterns of convergent validity (21,24). In the present study, Cronbach’s α for this scale was .82.

**Perceived discrimination**. At Time 2, participants also completed a 6-item measure of perceived discrimination (24). Items on this scale assess the frequency of being treated negatively due to participants’ nationality. All items were rated on a 4-point scale ranging from 1 (*Never*) to 4 (*Almost always*). An overall score was computed as the mean of all 6 items, with higher scores reflecting greater perceived discrimination. Previous work has shown that this measure has good internal consistency and good convergent validity (24-25). In the present study, Cronbach’s α for this scale was .88.

**Demographics**. At Time 1, participants provided their demographic details consisting of age, university location, height, and weight. The latter two items were used to calculate self-reported BMI as kg/m2. Self-reported BMI has adequate patterns of validity in Asian samples (30).

**Procedure**

Ethics approval was obtained from the relevant university ethics committee. Beginning in January 2014, flyers were placed in communal areas of schools and colleges in Selangor, soliciting participation from Malay students who anticipated joining a higher education institution in the UK in September 2014. Potential participants who responded were provided with further information about the study (i.e., that it was a study about migration and health) and screened for eligibility. Participants who agreed to take part in the study provided written informed consent. Because travel plans were likely to vary, participants were asked to indicate their departure date during the screening interview. Two months before their departure date, participants were sent a link to an online questionnaire that included the EDI-3, the items of which were presented in a randomised order for each participant, and demographic items. Where there was no response, invitations were sent again three and six days later. A total of 110 participants completed the questionnaire at Time 1. Four months after their departure date, participants were sent a link to a new questionnaire containing all the measures described above, which were presented in a pre-randomised order for each participant. Reminders for non-completion were sent three and six days later. A total of 98 participants completed the questionnaire at Time 2. Email addresses were used to link questionnaire data from Times 1 and 2, and were destroyed prior to analyses. The questionnaires were otherwise anonymous and all participants took part on a voluntary basis without remuneration. All questionnaires were presented in English; this was deemed acceptable as all UK higher education institutions have minimum requirements for English language proficiency (writing, listening, reading, and speaking). Following completion of the questionnaire at Time 2, all participants were sent debriefing information.

**Results**

**Attrition**

The attrition rate between Times 1 and 2 was 10.9%. Independent-samples *t*-tests indicated no significant differences between those who completed the questionnaires at both time points and those who only completed the questionnaire at Time 1 in terms of age, *t*(108) = 1.79, *p* = .076, *d* = 0.34, and BMI, *t*(108) = 0.48, *p* = .635, *d* = 0.09. This suggests that participation was not compromised by these factors.

**Change in Eating Disorder Symptomatology**

Descriptive statistics for the EDI-3 subscales are presented in Table 1. To examine change in risk factors pre- and post-migration, a series of Bonferroni-corrected (*p* = .05/3 = .017) pairwise *t*-tests were conducted. Results showed that there was a significant increase in drive for thinness scores post-migration, *t*(97) = 6.35, *p* < .001, 95% CI = .26, .50, *r* = .87. The dependence-corrected Cohen’s *d* (31) was 0.64, suggesting a moderate difference (32). Likewise, there was a significant increase in body dissatisfaction scores post-migration, *t*(97) = 5.40, *p* < .001, 95% CI = .24, .51, *r* = .55. The dependence-corrected Cohen’s *d* was 0.54, again suggestive of a moderate difference. Finally, the results for bulimia symptoms also showed an increase in scores post-migration, *t*(97) = 2.90, *p* = .005, 95% CI = .07, .37, *r* = .63. The dependence-corrected Cohen’s *d* of 0.29 was indicative of a small difference.

**Experiences in the Host Culture**

To examine associations between risk factors and measures of experiences in the host culture, three multiple linear regressions were computed with drive for thinness, body dissatisfaction, and bulimia symptoms from Time 2 as criterion variables. Sociocultural adjustment, cultural distance, and perceived discrimination were entered as predictor variables. An examination of the variance inflation factors (VIFs) indicated that multicollinearity was not a limiting issue in any of the regressions (all VIFs ≤ 1.50). Regression coefficients are reported in Table 2. The regression with drive for thinness was significant, *F*(3, 94) = 13.82, *p* < .001, Adj. *R*2 = .28, with poorer sociocultural adjustment, greater cultural distance, and higher perceived discrimination predicting greater drive for thinness. The regression with body dissatisfaction was also significant, *F*(3, 94) = 6.12, *p* < .001, Adj. *R*2 = .14, but only poorer sociocultural adjustment and higher perceived discrimination significantly predicted greater body dissatisfaction. The regression with bulimia symptoms failed to reach significance, *F*(3, 94) = 1.34, *p* = .266, Adj. *R*2 = .01.

In addition to subscale scores, Garner (27) also allows for a higher-order total risk factor score to be computed comprising of drive for thinness, body dissatisfaction, and bulimia symptoms. In the present work, a total score was computed as the mean of all three subscale scores. This total score was then offered to a multiple linear regression as a criterion variable, with the acculturation scores as predictor variables. This regression was significant, *F*(3, 94) = 12.23, *p* < .001, Adj. *R*2 = .26. Of the variables entered into the model, poorer sociocultural adjustment (B = .36, SE = .11, β = .35, *t* = 3.31, *p* = .001) and greater perceived discrimination (B = .32, SE = .09, β = .27, *t* = 3.04, *p* = .003) emerged as significant predictors. Cultural distance (B = .76, SE = .32, β = .15, *t* = 1.45, *p* = .152) did not emerge as a significant predictor and multicollinearity was not a limiting factor in the regression ( all VIFs ≤ 1.45).

**Discussion**

The present study examined the culture-change hypothesis that transition between cultures results in higher rates of, and risk for, disordered eating (6-7). Findings were supportive of this hypothesis: it was found that sojourning Malay students in the UK had significantly higher risk for disordered eating four months after the onset of their cultural transition compared to two months prior to the transition. Specifically, participants in the present study had significantly higher scores of drive for thinness, body dissatisfaction, and bulimia symptoms as measured on the EDI-3 post-migration. Broadly speaking, these findings are consistent with earlier work indicating that sojourning abroad is an important factor in developing an eating disorder and negative body image (8-12).

As various scholars have discussed, the onset of eating disorders may be triggered by the stress associated with moving abroad and adjusting to a different cultural environment. For example, in their qualitative interviews with Czech au pairs living abroad, researchers highlighted difficulties with adjusting to the host culture (e.g., fattier foods leading to weight gain) and the loneliness of being away from familiar social support as important factors increasing the risk of eating disorder onset (8). In addition, thinness was seen by some respondents as a “commodity” to bring home (8). More broadly, exposure to Western popular culture – where thin bodies, strict management of weight, and an ethos of working on the body are strongly valued (4,33) – may lead to an increased risk of eating disorders in sojourners.

Support for the culture-change hypothesis was also provided in the form of significant associations between risk for disordered eating and measures of experiences in the host culture. Specifically, the present study found that poorer sociocultural adjustment and greater perceived discrimination was significantly associated with higher total scores of eating disorder risk. Associations with specific subscales of the EDI-3 were mixed, although generally in line with the afore-mentioned perspective vis-à-vis drive for thinness and body dissatisfaction. The regression with bulimia symptoms failed to reach significance, most likely because of the low variance in scores on this subscale. Overall, however, the present findings suggest that poorer adjustment and greater perceived discrimination in the host culture, in particular, may be factors that heighten risk for disordered eating.

Poorer sociocultural adjustment may be indicative of more stressful transitions in the host culture. For example, individuals with poorer sociocultural adjustment may have greater difficulties negotiating the myriad practical requirements of sojourning and dealing with everyday life in the host culture (15). They may also have greater difficulty forming social relationships with others in the host culture (24-25), which may also impact on help-seeking behaviours. These issues may be further problematised by the experience of discrimination, whether perceived or real, in the host culture. For Malay-Muslims in the UK, in particular, visual signifiers of their ethno-racial identities may have a detrimental effect on interpersonal relationships (34-35). In short, the degree of learning that must occur for a sojourner to “fit in” in the host culture appears to place some individuals at heightened risk for eating disorders.

Although the prospective design of this study was a strength, a number of limitations should be considered. First, it is possible that the increased risk for eating disorders seen in the present study could have been accounted for by a general set of factors associated with psychopathology more broadly (9). For example, migration to Western countries is associated with increased risk for a range of psychiatric disorders that are comorbid with disordered eating (36-37). Future work could examine this possibility by statistically adjusting for psychiatric disorders with onset prior to the onset of disordered eating symptomatology (9). Likewise, it is possible that the onset of an eating disorder is triggered by acculturation to Western culture specifically, rather than the stress of transmigration. One review of the literature concluded that acculturation is associated with eating disorder psychopathology, but that direction and strength of the association depends on the group being studied and how acculturation is measured (33). Including measures of acculturation to Western society would be another way in which the present design could be improved upon.

In addition, the information provided to potential participants may have introduced an unforeseen sampling bias, in that some individuals may have been more likely to want to participant in a study about migration and health than others. Further, while the variables included in the present study explained about a quarter of the variance in total eating disorder risk, it is apparent that there were neglected variables. Future work could, for example, also include measures of contact with individuals from the host and home cultures, which may provide a more direct assessment of social support. Another limitation of the design was the presentation of the questionnaire in English. Although all participants were expected to proficient in English language, as this was a requirement for study in the UK, it is probable that actual within-sample proficiency varied. Including a measure of English-language proficiency would be useful, but a better way of approaching this issue would be to develop a Malay-language version of the EDI-3. In particular, it will be important to determine whether responses to this Malay version show the same factorial validity as its English-language parent scale. In a similar vein, it may be useful to control for intra-individual differences in socioeconomic status, given previous work suggesting that there may be differences in body image in Malaysian women from sites that vary in socioeconomic (38).

These limitations notwithstanding, the present study provides evidence that transmigration among Malay students sojourning in the UK is associated with increased risk for disordered eating. If these findings can be replicated with other groups (e.g., other ethnics groups from Malaysia, but also sojourners from other national settings), they may point to sojourning students as an important at-risk group for disordered eating. This, in turn, may require early intervention practices to reduce such risk. For example, it may be possible to mitigate some of the detrimental effects of transmigration by ensuring that sojourning students are better equipped to deal with student life in the UK. Cross-cultural training, educational programmes aimed at promoting intercultural understanding (15), and more direct interventionist programmes related to body image and disordered eating may prove important for sojourning students.

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Table 1. *Means and Standard Deviations for the Eating Disorders Inventory-3 Subscales at Time Points 1 and 2.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | Time of Measurement | | | |
| Time 1 (2 months prior to transmigration) | | Time 2 (4 months after transmigration) | |
|  | *M* | *SD* | *M* | *SD* |
| Drive for thinness | 3.33 | 1.16 | 3.71 | 1.18 |
| Body dissatisfaction | 3.01 | 0.69 | 3.38 | 0.76 |
| Bulimia symptoms | 2.23 | 0.90 | 2.45 | 0.85 |

Table 2. *Results of the Multiple Linear Regressions with Eating Disorder Inventory-3 Subscales as the Criterion Variables.*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Drive for thinness | | | | | Body dissatisfaction | | | | | Bulimia symptoms | | | | |
|  | B | SE | ß | *t* | *p* | B | SE | ß | *t* | *p* | B | SE | ß | *t* | *p* |
| Sociocultural adjustment | .46 | .19 | .25 | 2.43 | .017 | .29 | .13 | .24 | 2.15 | .034 | .32 | .16 | .24 | 1.99 | .050 |
| Cultural distance | .45 | .17 | .26 | 2.56 | .012 | .13 | .12 | .11 | 1.04 | .299 | .15 | .15 | .12 | 1.00 | .321 |
| Perceived discrimination | .88 | .56 | .28 | 3.19 | .002 | .87 | .40 | .23 | 2.45 | .016 | .14 | .48 | .03 | 0.30 | .763 |