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ORIGINAL PAPER

Developing Depressive Symptoms over the Adolescent Years: The Influence of Affiliated Cultural Values among Taiwanese Youth

Chien-Ti Lee[1] · Troy E. Beckert[2] · Larry J. Nelson[1] · Chih Han Hsieh[1] · Richard B. Miller[1] · Chyi-In Wu[3]

Abstract The purpose of this study was (a) to identify latent subgroups of Taiwanese adolescents who vary in their cultural value affiliations and (b) to examine how latent-subgroup membership in early adolescence predicted depressive symptoms for 6 years throughout adolescence into young adulthood. Participants consisted of 2458 youth from the longitudinal Taiwan Youth Project (TYP). Latent profile analysis indicated five classes (patterns) of cultural value affiliation. A zero-inflated Poisson (ZIP) analysis followed, which identified the estimated (a) probability of experiencing depressive symptoms and (b) number of depressive symptoms experienced by individuals who reported depressive symptoms across the five observational time points. Results showed that among the five classes of value affiliation, two classes had a greater likelihood of experiencing depressive symptoms at the beginning of the assessment (age 15). Youth who were least likely to embrace societally prescribed culture values were at the greatest risk for manifesting subsequent depressive symptoms. These findings support the idea that the way adolescents identify with their cultural values predicts subsequent depressive symptoms.

Keywords Taiwanese youth · Cultural values · Collectivistic culture · Depressive symptoms

✉ Chien-Ti Lee
chienti_lee@byu.edu

[1] Brigham Young University, JFSB 2086, Provo, UT 84602, USA

[2] Utah State University, Logan, UT, USA

[3] Academia Sinica, Taipei, Taiwan

Introduction

Traditional values that have been mainstays in Taiwanese culture for generations are less influential in today's youth, in part due to pervasive globalization. Over the past two decades, more Western individualistic beliefs have increasingly influenced young people in Taiwan, creating internal conflicts for some youth as they strive to balance their "cultural affiliation" (i.e., how strongly an individual agrees with the values in a given culture in general) with competing Eastern and Western views (see Arnett 2002) and to maintain well-being or a positive affect toward life (Lu 2006).

In the current global environment, it is unreasonable to assume that all individuals in a collectivistic society demonstrate the same traditional values (Chiu et al. 2010). Instead, there is a great deal of within-culture variation. Consequently, it is important to assess the role of cultural affiliation on an individual level, rather than assuming homogeneity across members of a country based on the dominant collectivistic influences of a given culture (Lee et al. 2010). Unfortunately, the interactive effect of traditional values and globalization-induced Western influences on the individual lives of youth remains unclear (Gabrenya et al. 2006). Specifically, little is known about the relationship between affiliated cultural values and subsequent maladaptive outcomes, such as depressive symptoms, especially among adolescents in a society with mixed of Western and traditional value such as Taiwan.

Many of the traditional values in Taiwan represent common conceptualizations of collectivism, and, although the tenets of collectivism are vast, a few key elements commonly differentiate it from typical individualistic views. Features of Chinese/Taiwanese traditions are plentiful and complex. Traditional cultural values that are most

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frequently mentioned in the literature and that represent salient traditional values in Taiwan include academic deference, meeting scholastic expectations from parents (see Jose et al. 2000; Shaw 2006; Yi et al. 2009); less independent thinking, making independent decisions/judgments without parental supervision (Kagicibasi 2013; Lee and Beckert 2012; Peterson et al. 2005; Yeh and Yang 2006); vertical obedience, conforming to the wishes of parents and authority figures (Quek et al. 2010); and harmony maintenance, being socially sensitive and self-restraining to ensure peace in relationships (see Chao 1994; Hsiung and Ferrans 2007; Ip 2014; Kim and Markus 1999; Lin and Fu 1990; Matsumoto and Kupperbusch 2001; Suizzo and Cheng 2007; Tamis-LeMonda et al. 2002; Wei et al. 2013).

Past work has found associations in general between values (e.g., collectivism vs. individualism) and indices of adjustment and maladjustment in adolescence (Florsheim 1997; Lee et al. 2010; Li et al. 2010). One of the significant problems in how affiliation with traditional (collectivistic) values has been examined is in the assumption that individuals are "all or nothing" in the degree to which they identify with certain cultural values. However, not only do individuals within certain cultures vary to the extent to which they identify with the values of the larger society in which they live generally, but individuals also vary in the extent to which they identify with certain specific elements of the broader value system. For instance, some individuals may identify to a large extent with harmony maintenance but to a lesser extent with academic deference. Therefore, in believing that all individuals within Asian cultures identify uniformly with traditional values, researchers may be missing out on the complexity and variance that exists within cultures. To capture that complexity and variance, it seems important to examine differences among individuals in the degree to which they affiliate (agree) with specific elements of collectivistic beliefs.

Accordingly, this would seem especially important to do among Taiwanese adolescents. First, even among traditionally Taiwanese youth, adolescence is a time in which they begin to question their identity and strive for greater autonomy from parents (e.g., Kagicibasi 2013; Lee et al. 2010). Thus, the developmental strivings of adolescence may pose a conflict between the tasks of adolescence and traditionally oriented values. Second, the extent to which adolescents in Taiwan identify with certain elements of traditional values may be impacted by exposure to westernization (Lee et al. 2010). The influence of Western culture is evident as the levels of traditional values fluctuate among high school students, especially in urban areas of Taiwan (Lee et al. 2010). Taken together, there is reason to expect variance among adolescents in Taiwan as to how they affiliate with specific elements of cultural beliefs. In this study, we tap into four different cultural values (i.e., academic deference, independent thinking, vertical obedience, harmony maintenance), and the first purpose of this study was to identify latent subgroups of adolescents who vary in their cultural value affiliations.

Researchers suggest that cultural values play an important role in individual psychopathology or well-being. This is because cultural values can shape one's cognitions, including one's perspective toward self (Chen et al. 2006; Lu 2006; Lu et al. 2001). One aspect of well-being that may be particularly important to examine among Asian adolescents is depression. Alarm surrounding the presence of adolescent depressive symptoms is not limited to youth in Western societies. Lin et al. (2008) reported a 12.3% prevalence of depression among urban and rural youth ($N = 9586$) who lived in Southern Taiwan. A recent survey from the John Tung Foundation (2011) showed that about 18% of Taiwanese junior high, senior high, and vocational high school students ($N = 5056$) from five main cities (Taipei City, New Taipei City, Taitung City, Tainan City, and Kaohsiung City) in Taiwan felt depressed and needed clinical attention. Indeed, the prevalence of depressive symptoms among Taiwanese youth is also high.

Although numerous factors may account for the relatively high rates of depression, it would be important to understand how differences in affiliation with traditional values may be linked to depression. Previous study has suggested that the pressure for academic achievement may explain a portion of the stress Asian youth face (Lin et al. 2008), although some scholars argue that academic strain is a cultural norm and therefore does not necessarily lead to increased depressive symptoms (Stevenson and Stigler 1992). Also, social hierarchy in Taiwanese society not only contributes to the notion of respecting authority but also helps maintain interpersonal harmony. However, researchers are finding that Chinese adolescents' attitudes have shifted to the point that many youth believe that parents do not have absolute authority and power over them (see Dmitrieva et al. 2004; Zhang and Fuligni 2006). Even with this shift, Chinese parents (compared to parents in Western families) still exact more parental influence on their adolescent children (Peterson et al. 2005). Consequently, Taiwanese adolescents who do not identify with vertical obedience may experience more family conflict and, therefore, an increased likelihood of psychosocial distress such as depressive symptoms.

The value of independent thinking provides another example of how variations in the affiliation with elements of collectivism may be differentially linked to depression. Those young people who identify strongly with the value of obedience may suppress individual desires to conform to societal expectations and authority figure requirements. On the other hand, there are also youth in Asian cultures who

embrace individualism and independent autonomy who are less prone to live in accordance with family and societal expectations; rather, they may place greater value on personal freedom and individual choice (Oyserman et al. 2002). From the vast literature from Western cultures, we learn that individuals are more likely to feel depressed when they perceive external constraints restricting them from reaching a desired outcome or exerting undue influence on important personal decisions (Muris 2002).

Taken together, it stands to reason that variations in the extent to which adolescents identify with various elements of traditional values may be linked to indices of maladjustment including depressive tendencies. The longer the potential conflict may exist between the values that adolescents personally ascribe to and the values of the larger society, the greater likelihood that depression may occur. Instead of assessing an overall score for each traditional value of interest, this current study applied an integrated/holistic approach to assess how these closely related, yet different, values join to generate overall patterns of value affiliation among Taiwanese youth. Thus, it may be expected that differences in how adolescents identify with various elements of traditional values may account for differences in individual well-being. Unfortunately, few studies have considered the association between their affiliation with a variety of values and indices of adjustment or maladjustment. Hence, the second purpose of the study was to examine, longitudinally, the association between latent subgroup membership and depressive symptoms. Specifically, the study will examine how group membership in early adolescence predicts depressive symptoms throughout adolescence and into young adulthood.

In sum, assuming that all individuals within a particular country represent a particular value system, such as collectivism (e.g., Taiwan) or individualism (e.g., United States), fails to capture the individual differences within those cultures. Indeed, the growing effects of globalization are exposing adolescents in Asian cultures to a wide variety of beliefs and values. As a result, there is a need to examine individual differences and how adolescents in Taiwan may affiliate with specific elements of traditional beliefs while exploring how differences in identifying with particular values may be related to indices of well-being. In addition, a lack of theory or theoretical framework addressing the link between cultural values and adolescent well-being also underscore the novel contribution of the present study. We believe that when conducting research in a relative new field/area, data-driven approaches are very helpful to build a theory or theoretical framework so we hope to have laid an empirical foundation from which future theoretical and empirical work can be build. Hence, the purpose of this study was to (1) identify latent subgroups of Taiwanese adolescents who vary in their cultural value affiliations (i.e., academic deference, independent thinking, vertical obedience, harmony maintenance) and to (2) examine how group membership in early adolescence predicted depressive symptoms from adolescence into young adulthood.

Method

Participants

We drew our data from The Taiwan Youth Project (TYP), a longitudinal study of Taiwan's youth conducted by the Family and Life Course Research Group of the Institute of Sociology at the Academia Sinica. Response rates from Waves 1, 2, 3, 4, and 6 were 98.65, 87.96, 84.78, 71.7, and 63.4%, respectively. Only youth from traditional biological families were included in the current study ($N = 2458$) in an effort to rule out possible interaction effects between cultural values and other family structures (widowed, separated, divorced, divorced but still living together, etc.), which were not a focus of this study. The last wave used in the current study began in 2004, when most participants were between ages 19 and 20. In all, the participants for the present study completed surveys on at least one and up to five separate occasions (there were six waves of data collection; however, data were not collected on depressive symptoms during Wave 5). Compared to participants who were missing at least one wave of data, participants who completed five waves of data for this study were more likely to have parents with higher levels of education ($M = 3.50$ and. 3.23, SE = .56 and .62, $p < .001$) and to have better family relationships at home ($M = 2.98$ and 2.90, SE = 1.68 and 1.62, $p < .001$). However, these differences were small (i.e., effect sizes <0.3). No statistical differences were found with age, family income, gender, or depression score at Wave 1. Overall, these outcomes suggest that the participants in this present study were generally similar to each other regardless of the number of waves in which they participated. Table 1 presents the participants' characteristics at baseline. Around 36.5% of this sample lived in urban areas, 41.1% were from the suburbs, and 22.4% of the youth lived in rural areas. The gender ratio was equal in this sample. The majority of the participants reported a family income either between NT$30,000–NT$50,000 (24.1%) or between NT$50,000–NT$60,000 (22.1%), predominately representing a middle class (the currency exchange rate is one U.S. dollar equals 31.30 New Taiwan dollars). Most parents of the adolescents had earned a high school diploma (25.1%) or completed junior high school (24.5%). At baseline, 17.4% of the participants reported no depressive symptoms.

Table 1 Baseline sample characteristics ($N = 2458$)

Variable	N (%) for categorical data *M* (*SD*) for continuous data
Age	15.36 (0.50)
Income	4.30 (3.03)
Parental education levels	3.38 (1.66)
Family relationships	2.94 (0.59)
Gender (% female)	1230 (50%)
Residency (% of urban)	898 (36.5%)
Depressive symptoms	
None	428 (17.4%)
One	365 (14.8%)
Two	431 (17.5%)
Three	408 (16.6%)
Four	362 (14.7%)
Five	269 (10.9%)
Six	195 (7.9%)

Procedure

In the year 2000, TYP employed a multistage stratified cluster sampling method. In the first stage, TYP stratified the targeted city or county (Taipei City, Taipei County, and Yi Lan County) into two to three strata based on their urbanization degree. Next, the number of schools and classes are calculated and selected based on the number of students needed for each stratum. Details about sampling procedures can be found at the English version of the TYP website (http://www.typ.sinica.edu.tw/E/?q=node/15). The first wave of the study began in 2000, when participants were in their final year of junior high school ($N = 2851$).

Measures

Depressive symptoms

We measured adolescents' depressive symptoms via the short version of Symptom Checklist-90-Revised (SRL-90-R; Derogatis 1994), which has previously been used to measure depressive symptoms among Taiwanese youth (see Yi et al. 2009). For each wave (expect for Wave 5), six items measured the frequency of depressive symptoms including sadness, headaches, loneliness, insomnia or difficulty falling asleep, constantly feeling something stuck in the throat, and fatigue. The response options ranged from one (none) to five (yes, very seriously bothers me). Alpha coefficients for scores on this measure at each wave were acceptable (.78, .63, .67, .79, and .80, respectively). After examining the positively skewed distribution of responses, we decided to dichotomize each of the six item responses into zero (none) to one (any experienced symptoms). Accordingly, depressive symptoms of participants ranged from zero to six for each data point.

Academic deference

Five items at Wave 1 were used to evaluate the adolescents' tendency to conform to general and academic expectations. These items were "I try my best to meet my parents' expectations," "I study hard to please my teachers," "I often evaluate whether I have met my parents' expectations," "I often try to work harder to meet my parents' expectations toward my academic achievement," and "My parents and teachers decide the standards/expectations for my work." The response options ranged from one (strongly agree) to four (strongly disagree). These items were reverse coded; therefore, a higher score represented greater conformity. The alpha coefficient for scores in this study was .73. Confirmatory factor analysis showed that these five indicators had acceptable factor loadings (.64, .51, .68, .80, and .35, respectively) as well as a good model of fit ($\chi^2_{(5)} = 64.86$, $n = 2458$, $p < .0001$, CFI = 0.973, RMSEA = .065, SRMR = .028), demonstrating that they are good indicators for measuring deference.

Independent thinking

The two items at Wave 1 that identified adolescent independent thinking were "Regardless of what my parents or teachers expect, I try my best to work on things I think are important" and "When I complete a task, I like to evaluate my work based on my own standard." The response options ranged from one (strongly agree) to four (strongly disagree). A higher average score represented greater independent thinking. The alpha coefficient for scores in this study was .72. A Pearson correlation coefficient between these two items was .57, demonstrating acceptable convergent validity to examine this construct.

Vertical obedience

Vertical obedience was measured at Wave 1 with five items, including "I show filial obedience or devotion for parents," "I show proper manners toward seniors," "I obey my parents' and teachers' directives," and "I follow the rules at school." The response options ranged from one (very important) to four (not important at all). These items were also reverse coded; therefore, higher average scores represent a greater tendency toward vertical obedience. The alpha coefficient for scores in this study was good at .79. Confirmatory factor analysis also showed that these four indicators had acceptable factor loadings (.57, .77, .79, and .67, respectively) and good model fit ($\chi^2_{(2)} = 10.310$, $n = 2457$, $p = .0058$,

CFI = 0.997, RMSEA = 0.038, SRMR = .029), making the scale a good indicator of vertical obedience.

Harmony maintenance

Four items measured harmony maintenance at Wave 1, including "It is important to me that I esteem my peers," "It is important to me that I am thoughtful," "It is important to me that I can get along with others," and "It is important that I humble myself and treat others with respect." These response options also ranged from one (very important) to four (not important at all) and were reverse coded, resulting in higher average scores representing greater tendency toward maintaining harmony. The alpha coefficient for scores on this scale was also good at .85. Through confirmatory factor analysis, these four indicators demonstrated favorable factor loadings (.79, .82, .74, and .71, respectively), and good model fit ($\chi^2_{(2)} = 7.026$, n = 2457, $p = .0298$, CFI = 0.998, RMSEA = 0.030, SRMR = .007), confirming their use as a scale for measuring harmony maintenance.

Covariates

Participant characteristics including age, gender, type of residency (nonurban vs. urban), family income (ranging from 1 to 13, with a higher rank representing greater income), parental education (ranging from one [elementary school diploma] to seven [post bachelor degree]) were entered at Wave 1 to account for preexisting differences among participants (see Wu and Lei 2003). In addition, quality of family relationships was also included here because high-quality family relationships have been linked to reduced depressive symptoms among adolescents in both Western and Eastern societies (see Hair et al. 2008; Liu 2006). We measured the quality of family relationships with a scale consisting of seven items, including "Our family relationships are stronger than our relationships outside the family," "Family members feel close to each other," "Family members enjoy each other's company," "As a family we like to do things together," "As a family we accept each other's friends." The response options ranged from one (strongly agree) to four (strongly disagree). These items were reverse coded, so higher scores represented a superior quality of family relationships. The Alpha coefficient of the scores on this scale was good at .85.

Data Analyses

Inferential analyses in the current study were conducted using Mplus 7.4 (Muthén and Muthén 1998–2012). Latent Profile Analysis (LPA; see Vermunt and Magidson 2002) was first applied to evaluate the heterogeneity of cultural value affiliations among the studied participants. The constructs of personal values, including academic deference, independent thinking, vertical obedience, and harmony maintenance, were subjected to LPA to identify subgroups of cultural value affiliations within the sample population, operating under the assumption of conditional independence. The decision regarding how many classes to fit was made based on standard criteria using Bootstrapped Likelihood Ratio Tests (BLRT) and Bayesian Information Criterion (BIC). The BLRT provides a *p*-value for incremental model fit (comparing a solution with k classes to a model with k-1 classes); significant *p*-values indicate that a higher number of classes is a better model fit, while lower BICs indicate better fit (Nylund et al. 2007; Vermunt and Magidson 2002). Also, a higher entropy value in general indicates greater precision of classification (Vermunt and Magidson 2002).

Once the optimal number of LPA classes was determined, the resulting five classes were regressed on a subsequent zero-inflated Poisson (ZIP) latent growth model, and the influence of age, gender, family income, parental education level, and family relationship quality were taken into account. An inherent problem in analyses of psychosocial problems, like depressive symptoms, is the positively skewed distribution for depressive symptoms across observations (most respondents were "0" for experiencing depressive symptoms). To account for the positive skew of the data especially at Waves 2 and 3 (see Fig. 1), we used zero-inflated Poisson latent growth modeling (ZIP-LGM) to estimate (a) the trajectory of the estimated probability of experiencing depressive symptoms and (b) the trajectory of the estimated number of depressive symptoms for each class using multigroup procedure (via the "NKNOWNCLASS" command in Mplus). Next, we utilized multigroup

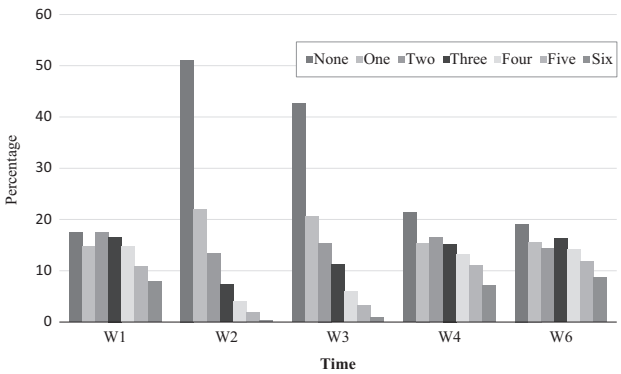

Fig. 1 Distribution of depressive symptoms over time. *Note*. It appears to be that Taiwanese adolescents tends to be more depressed at W1 (the final year at junior high school) and W4 (the final year at senior high school), this is possibly because they were preparing the school entrance exams. Youth may continually felt sad/depressed at W6 because they started to sense the pressure from the major and/or finding a career

comparisons to determine whether there were differential trajectories of depressive symptoms across latent classes. Missing depressive symptoms data across five waves were minimal and we addressed them using the Full Information Maximum Likelihood (FIML) approach via Mplus.

Results

As a first step, we conducted LPA, specifying a range of two to six classes. Results indicated that models for two to five classes were appropriate while the six-class model failed to converge after 4000 interactions, indicating a poor fit between a six-class model and the data. Because the BLRT for two to five class models were all significant at .0001 levels, and the BIC scores decreased from two to five class models (15873.23, 15444.52, 15304.61, and 15088.67, respectively), and a five-class model was retained. The five-class average latent class probabilities for the most likely latent class membership were .99, .88, .87, .82, and .80, indicating acceptable prediction of class membership. Entropy for a five-class model was .79, indicating acceptable separation of the latent classes. Figure 2 shows the estimated mean scores for each cultural value across the five classes.

Table 2 presents the relationship between the covariates and class membership to reflect a more complete picture of the class assignments. There were statistically significant differences between classes for age, gender, residency (urban vs. rural areas), and family relationships, but not for family income or parental education. Overall, participants in Class 1 were older ($M = 15.49$; $SD = .55$), more participants in Class 2 were female (54.2%), and Class 5 had the most urban youth (46%). For family relationships, Class 3 had the highest quality of family relationship ($M = 3.15$; $SD = .58$), while Class 5 ($M = 2.56$; $SD = .56$) had the lowest. Nevertheless, the effect size of these differences were all relatively small.

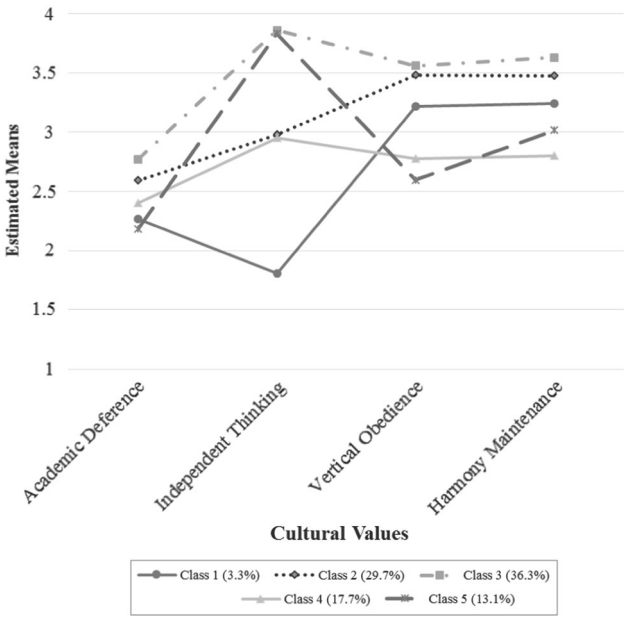

Fig. 2 Estimated means of cultural values across class memberships ($N = 2458$)

Adolescents in Class 1 (3.3% of the sample, $n = 80$) consisted of 42.5% females, with a mean age of 15.49 ($SD = .55$) and had low mean scores in academic deference and independent thinking ($M = 2.26$, 1.81; SE = .077, .046, respectively). Class 2 included 29.7% of the sample ($n = 729$), 54.2% of whom were female. The mean age was 15.34 ($SD = .49$). High scores characterized this group of adolescents in vertical obedience ($M = 3.48$, SE = .047) and maintaining harmony ($M = 3.48$, SE = .046) and they had medium scores in academic deference ($M = 2.59$, SE = .018) and independent thinking ($M = 2.98$, SE = .012). Class 3 (36.3% of the sample, $n = 892$, 49.9% female), with a mean age of 15.39 ($SD = .51$), was characterized by highest scores in academic deference ($M = 2.77$, SE = .027), independent thinking ($M = 3.86$, SE = .009), vertical obedience ($M = 3.56$, SE = .025), and harmony maintenance ($M = 3.63$, SE = .020). Class 4 included 17.7% of the sample ($n = 435$), 46.7% of whom were female, and the average age was 15.29 ($SD = .46$). Adolescents in this group had the medium scores across domains of traditional cultural values including independent thinking (M ranged from 2.40 to 2.79; SE ranged from .018 to .066). Participants in Class 5 (13.1% of the sample, $n = 322$, 47.5% female), with a mean age of 15.40 ($SD = .53$), were characterized by the lowest scores in academic deference ($M = 2.18$, SE = .048) and vertical obedience ($M = 2.60$, SE = .056) but high scores in independent thinking ($M = 3.83$, SE = .018).

Figure 3a, b, results generated simultaneously by ZIP latent growth modeling, display the estimated probability of experiencing depressive symptoms and the estimated number of depressive symptoms among those who had symptoms across waves. We conducted a series of Wald tests via "Model Test" through Mplus to compare the probability of experiencing depressive symptoms and the number of depressive symptoms at the intercept, as well as the slope for each pair of classes across all five waves. For the probability of experiencing depressive symptoms at age 15 (intercept), results indicated that Classes 5, 4, 3, and 2 had significantly higher probability of experiencing any symptoms than Class 1 ($\chi^2 = 6.584$, $p = .0102$; $\chi^2 = 4.372$, $p = .0365$; $\chi^2 = 8.136$, $p = .0043$; $\chi^2 = 6.81$, $p = .0091$). There were not significant differences between Classes 5, 4, 3, and 2 in terms of the probability of experiencing any symptoms at the intercept, nor was the increasing rate

Table 2 Characteristics of covariates for five classes ($N = 2458$)

	Class 1 (3.3%)	Class 2 (29.7%)	Class 3 (36.3%)	Class 4 (17.7%)	Class 5 (13.1%)
Age	15.49 (.55)	15.33 (.49)	15.39 (.51)	15.29 (.46)	15.39 (.50)
Income	4.11 (3.27)	4.18 (3.07)	4.50 (3.09)	4.06 (2.83)	4.38 (2.94)
Parental education levels	3.05 (1.70)	3.28 (1.61)	3.45 (1.69)	3.29 (1.60)	3.59 (1.71)
Family relationships	2.77 (0.61)	3.03 (0.52)	3.15 (0.58)	2.70 (0.51)	2.56 (0.56)
Gender (% female)	42.5	54.2	49.9	46.7	47.5
Residency (% of urban)	40.0	33.9	35.9	34.7	46.0

Note: *M* (SD) for continuous data and percentage for categorical data

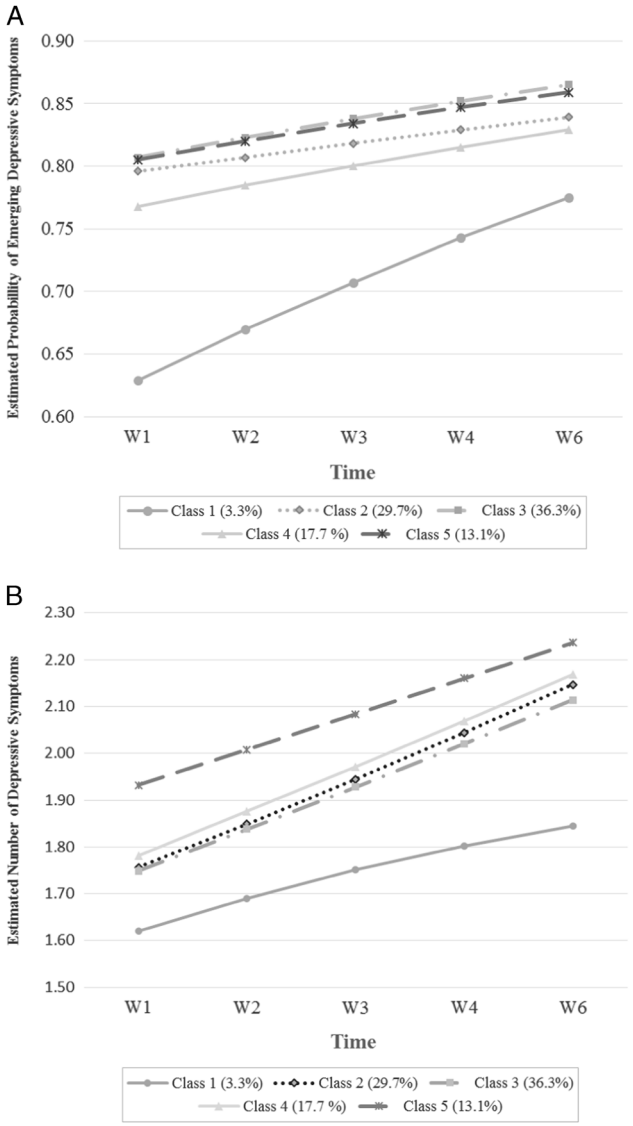

Fig. 3 **a** Estimated probability of experiencing depressive symptoms for each class membership across time points. **b** Estimated number of depressive symptoms of each class membership across time points

(slope) of the likelihood of experiencing depressive symptoms significantly different between any of the classes.

For the mean number of depressive symptoms, we found that Class 5 had a significantly higher number of depressive symptoms than Classes 2 and 3 at age 15 ($\chi^2 = 3.511$, $p = .0609$; $\chi^2 = 4.967$, $p = .0258$). There was no difference between Classes 2, 3, and 4 in this regard. Likewise, there were no significant differences between classes with respect to the slope of the number of depressive symptoms.

Overall, our results showed that individuals in Class 5 were more likely to report a greater number of depressive symptoms than all of the other classes. In contrast, Class 1 appeared to have the least probability of indicating depressive symptoms. Also, our results showed that the change rates (slope) of depressive symptoms were similar between classes, indicating that depressive symptoms among Taiwanese youth were quite stable across observations regardless of class membership.

Discussion

This study uniquely examined the association between cultural affiliations and the presence of depressive symptoms. Using longitudinal data from randomly selected classrooms of Taiwanese adolescents, the scope of this study was twofold. First, we sought to identify patterns of cultural affiliation among Taiwanese youth. Second, we sought to identify the relationship between latent classes and trajectories of experiencing depressive symptoms.

Using LPA, a five-class membership distinguished itself in these data. It should first be noted that there was no class that distinguished itself as a "purely" traditional group. No class scored high on all of the traditional values and low on independent thinking. Only Class 1 scored rather low on independent thinking and high on vertical obedience and maintaining harmony, but even then, they scored among the

lowest of the groups on academic deference. Thus, these findings appear to capture the within-culture variance that exists among adolescents' values and beliefs. Indeed, this observation underscores the importance of examining the impact of cultural value orientation in the ever-changing makeup of traditional cultures.

Our results showed that, within this group of Taiwanese youth, the greatest variation manifested was the degree of independent thinking. Many adolescents, born in collectivistic societies like Taiwan, accept family duties when they are young. However, as they get older, they may begin to question the emphasis placed on family obligations (Costa et al. 2005). As adolescents face added pressure from teachers and parents to enter into good high schools and choose a course of study that brings honor to the family, they may start to question why they do not have sufficient individual choices, especially when they are exposed to Western models of autonomy and individualism. It appears that for many adolescents they want to take their own wishes and desires into account when making decisions related to their academic endeavors (e.g., "regardless of what my parents or teachers expect, I try my best to work on things I think are important"). This represents a rather significant departure from traditional Asian values. Although not as pronounced, the results also demonstrate some movement away from other traditional values. Specifically, results revealed some variation in vertical obedience and harmony maintenance among these Taiwanese youth. Taken together, our findings demonstrate some evidence of westernization among Taiwanese youth.

Another notable finding in regard to the class membership was that, compared to other cultural values, youth had more similar scores in academic deference. All classes hovered around the expected mean of 2.5, implying little variation among Taiwanese youth in terms of the value of academic achievement when compared with other cultural values. This finding echoes what Stevenson and Stigler (1992) noted: that academic strain is more likely a cultural norm in Eastern Asian countries and therefore, by itself, may not be a good indicator for screening maladaptive outcomes within the cultural group. Nevertheless, the mean differences in academic deference were statistically significant, and the effect size was considered medium (partial eta square = .159). It is also important to notice that the average score of academic deference was the lowest among the traditional values. Although the academic pressures and norms may be omnipresent for adolescents in Taiwan, these results show that not all adolescents fully agree with what is being imposed on them.

The second purpose of this study was to examine the relationship of class membership with experiencing depressive symptoms over time. The findings from this study partially support the hypothesis that cultural value affiliation can be predictive of experiencing depressive symptoms for Taiwanese adolescents. In general, those adolescents who appear to adhere least with traditional values had the greatest propensity to experience depressive symptoms, but the picture is rather complex. For example, the distinguishing feature of Class 5 was its very high scores for independent thinking. As noted earlier, these youth were more likely to be from urban areas and, therefore, may be exposed to more Western influences that lead them to allign more closely with individualistic ideals. They not only indicated less dependence on others for approval of their decisions, but also did not closely follow the academic expectations of parents and teachers and struggled to obey external standards. They also scored lower on maintaining group harmony and lacked close family relationships, as compared to other classes (see Table 2). Their likelihood for experiencing depressive symptoms was the highest and they had the greatest number of depressive symptoms at age 15. Taken together, the results for Class 5 suggest that the more one's values tend to deviate from what is expected in one's larger culture, the more depressive symptoms one might experience. It may be that the constant conflict between one's inner thoughts/feelings and those who endorse traditional values (e.g., parents, teachers) starts to take a toll that, over time, results in depressive symptoms.

Indeed, it appears that a big issue in predicting depressive symptoms in these youth is the extent to which their own values deviate from, or align with, the broader values of their culture. In other words, if conflict arises when one's personal values are at odds with one's cultural values, it might be expected that the opposite would also be true, in that the more one aligns one's personal values with those of the culture, the fewer depressive symptoms might be manifested over time. This is, in fact, what was found with Class 1. Even though Class 1 individuals were similar to those in Class 5, with relatively low scores in academic deference, they seemed to follow the rules and maintain good relationships with others, while rejecting independent thinking, which appears to have protected them from expericng depressive symptoms. Again, the lack of both internal and external conflict might account for this. As young people align their beliefs with those of their culture and are endorsed by parents and teachers, there may be less conflict at home and school, and, therefore, less internal cognitive dissonance. As a result, adherence to cultural values may serve as a protective factor against depressive symptoms.

The complexity, however, becomes even more apparent when examining the other three groups. The other three groups did not differ from each other (or Class 5) in predicting depressive symptoms even though they varied quite a bit in terms of endorsing traditional values. What appears to emerge as a possible explanation for why these groups might differ in values, but not in predicting depressive

symptoms, is, again, the protective nature of adherence to values that are deemed important in the larger culture. For example, Class 3 scored rather high in independent thinking, but that appears to be offset by similarly high scores in vertical obedience and harmony maintenance and the highest scores in academic deference. Similarly, Class 2 had high scores in vertical obedience and harmony maintenance, so slightly higher scores in independent thinking did not appear to stand out. Thus, it seems that possessing some less traditional views can be tolerated within the culture as long as they are offset or masked by the coinciding presence of strongly favored cultural values. This balance might curtail the development of depressive symptoms because it lessens the daily conflict that occurs over these values at home and school, or because it lessens the internal cognitive conflict that occurs, or both. Regardless, it appears that holding at least some strongly favored cultural values, and not letting less traditional values markedly stand out, served as protective factors against internalizing problems such as depression in these Taiwanese adolescents.

Limitations

An important limitation of this study was the dependence on non-diagnostic measures of depressive symptoms. Without measures of validity, beyond face validity, caution should accompany any generalizations to clinical populations. More research can help assess the utility of these findings across other populations, both in Asia and in other countries with different cultural value priorities. In addition, even though effort was made to select representative samples from urban, suburban, and rural areas, only Taiwanese youth from the three specific regions were selected, and therefore, the generalizability of the results of this study is limited. It will be beneficial to replicate this study with a broader selection of the adolescent population in Taiwan as well as other Asian countries. Moreover, independent (vs. interdependent) thinking represents a very important cultural value indicator in Taiwanese society. Including more items, in subsequent studies, to fully assess its influence on adolescent outcomes would be beneficial to the field. Finally, it is possible that adolescents' sense of school belonging, actual school performance, and peer relationships could be either an outcome or a predictor of values. Unfortunately, we were unable to access these measures and determine the causal directions among them. It will be important for future research to identify possible ways to evaluate the aforementioned relationships.

In Sum, cultural value orientation is an important aspect of identity formation (i.e., ideology) during adolescence, even in traditionally collectivistic regions. The current study provided an important first step in examining the relationship between a potential clash of conflicting cultural values, made common by globalization, and negative psychosocial outcomes, like experiencing depressive symptoms. In general, our findings suggest that strongly adherence to at least some traditioanl values may serve as a protective factor against depressive symptoms. More research is needed to understand the mechanism of conflicted/mixed cultural value affiliation might aid in recognizing potential barriers to adolescent psychosocial well-being and spawn appropriate early intervention strategies.

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Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no competing interests.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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