# Changes of Chinese American Adolescents' Mental Health and School Engagement during COVID-19: A Latent Transition Analysis

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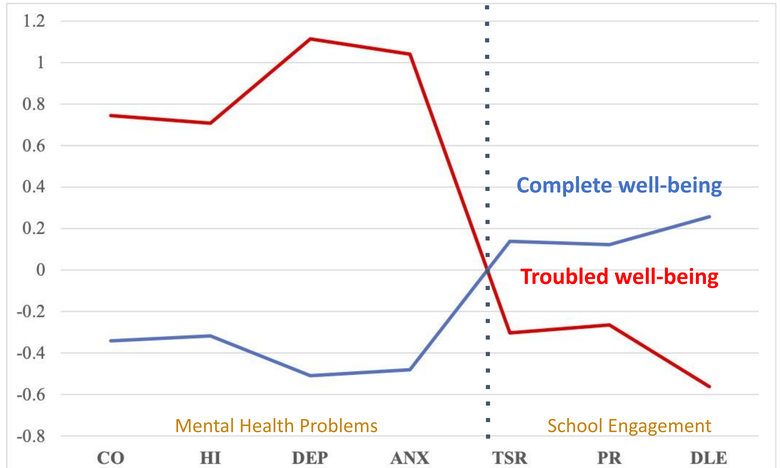
## ABSTRACT

Given the significant increase in discrimination and violence against Chinese Americans during the COVID-19 pandemic, the current study examined the changes in profiles of mental health problems and school engagement among Chinese American adolescents during the pandemic. A latent transition analysis of Chinese American youths' mental health problems and school engagement was performed via two waves of online surveys conducted in 2020. Results suggest that participants were classified into two latent profiles: (a) troubled well-being profile (i.e., higher mental health problems and lower school engagement) and (b) complete well-being profile (i.e., lower mental health problems and higher school engagement). Students' transition from troubled to complete well-being profiles was predicted by having a lower level of COVID-19-related peer discrimination and being an English language learner. Only being an English language learner significantly contributed to the transition from complete to troubled well-being profile. Social and emotional competencies did not significantly impact the profile transitions. The findings implicate that schools should put efforts into preventing COVID-19-related peer discrimination as well as providing additional support for ELL students to foster Chinese American adolescents' well-being.

## Rationale

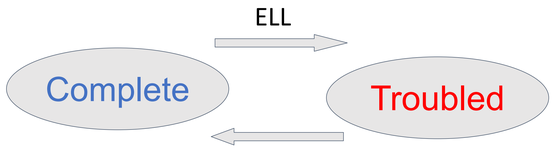
- Since the outbreak of COVID-19, Chinese American adolescents have reported experiencing unique vulnerabilities due to the anti-Asian racism and violence (Zong et al., 2021).
- However, there is a dearth of empirical studies focusing on Chinese American adolescents' psychological well-being during the pandemic.
- Although youths' psychological strengths are one of the most integral parts of their overall psychological functioning, researchers have focused only on Chinese American adolescents' mental health problems (e.g., Cheah et al., 2020; 2021), which disrupts a complete understanding of their well-being (Antaramian et al., 2010).
- Despite most adolescents spending a majority of their time in school and school-related work, there have rarely been studies examining psychological experiences at school.
- Existing research primarily used a variable-centered approach that fails to capture the extent to which there are different subpopulations based on common patterns of student well-being. Thus, there is a need to utilize a person-centered approach to examining Chinese American students' well-being.
- Former research did not explicitly address what can predict longitudinal changes in Chinese American adolescents' psychological well-being during COVID-19. The current study hypothesized that covid-19-related discrimination experiences, social emotional competencies (SECs), and English language learner (ELL) status would be associated with these changes.
- The current study explored Chinese American adolescents' longitudinal changes in profiles of mental health problems and school engagement and what predicted those changes.

## COVID-19-related peer discrimination and ELL status were associated with the profile transitions.




*Note.* CO (conduct problems/oppositional defiance), HI (hyperactivity-impulsivity/inattention), DEP (depression), ANX (anxiety), TSR (teacher-student relationship), PR (peer relationship), DLE (distance learning engagement)

| | T1 (Spring 2020) | T2 (Fall 2020) |
|---|---|---|
| Complete | 70.54% | 62.58% |
| Troubled | 29.46% | 37.42% |




Low COVID-19 peer discrimination
Non-ELL

**Table 1** Fit statistics of latent profile analytic models

| Time 1 | LL | fp | AIC | BIC | saBIC | Entropy | aLMR | BLRT |
|---|---|---|---|---|---|---|---|---|
| 1 | -2041.182 | 14 | 4110.364 | 4156.954 | 4112.597 | - | - | - |
| **2** | **-1915.922** | **22** | **3875.845** | **3949.058** | **3879.353** | **.876** | **< .001** | **< .001** |
| 3 | -1874.029 | 30 | 3808.058 | 3907.894 | 3812.843 | .846 | .158 | < .001 |
| 4 | -1851.156 | 38 | 3778.311 | 3904.770 | 3784.371 | .799 | .290 | < .001 |
| 5 | -1831.957 | 46 | 3755.915 | 3908.997 | 3763.251 | .832 | .002 | < .001 |
| 6 | -1815.480 | 54 | 3738.959 | 3918.665 | 3747.571 | .866 | .323 | .667 |
| 7 | -1801.394 | 62 | 3726.787 | 3933.116 | 3736.675 | .836 | .413 | .375 |
| 8 | -1789.992 | 70 | 3719.984 | 3952.936 | 3731.148 | .832 | .889 | .333 |
| 9 | -1777.382 | 78 | 3710.763 | 3970.337 | 3723.203 | .848 | .320 | .217 |
| 10 | -1763.088 | 86 | 3698.176 | 3984.373 | 3711.891 | .857 | .680 | .667 |
| **Time 2** | **LL** | **fp** | **AIC** | **BIC** | **saBIC** | **Entropy** | **aLMR** | **BLRT** |
| 1 | -1152.766 | 14 | 2333.531 | 2372.902 | 2328.635 | - | - | - |
| **2** | **-1062.295** | **22** | **2168.589** | **2230.457** | **2160.895** | **.872** | **.001** | **<.001** |
| 3 | -1026.204 | 30 | 2112.408 | 2196.773 | 2101.915 | .929 | .242 | <.001 |
| 4 | -1003.981 | 38 | 2083.963 | 2190.826 | 2070.673 | .971 | .239 | <.001 |
| 5 | -987.489 | 46 | 2066.978 | 2196.338 | 2050.890 | .961 | .643 | <.001 |
| 6 | -973.036 | 54 | 2054.072 | 2205.930 | 2035.186 | .925 | .737 | .013 |
| 7 | -957.206 | 62 | 2038.412 | 2212.768 | 2016.729 | .943 | .198 | <.001 |
| 8 | -943.743 | 70 | 2027.486 | 2224.339 | 2003.004 | .938 | .457 | .133 |
| 9 | -929.249 | 78 | 2014.497 | 2233.848 | 1987.217 | .946 | 1.000 | .065 |
| 10 | -917.996 | 86 | 2007.991 | 2249.839 | 1977.914 | .922 | .870 | .192 |

**Table 2** Logistic regression analyses by covariates

| | Troubled → Complete vs. Troubled (stayed) | |
|---|---|---|
| | ***B (SE)*** | ***OR*** |
| High school (ref = middle) | -1.892 (2.07) | .151 |
| Female (ref = male) | 3.406 (28.510) | 30.151 |
| ELL (ref = non-ELL) | -24.398*** (< .001) | < .001 |
| COVID-19 peer discrimination | -20.331*** (.786) | < .001 |
| Social Emotional Competencies | -.349 (.660) | .706 |
| | **Complete → Troubled vs. Complete (stayed)** | |
| | ***B (SE)*** | ***OR*** |
| High school (ref = middle) | .045 (.653) | 1.046 |
| Female (ref = male) | .5097 (.650) | 1.817 |
| ELL (ref = non-ELL) | 21.766*** (< .001) | > 999.999 |
| COVID-19 peer discrimination | -.356 (.998) | .701 |
| Social Emotional Competencies | .857 (2.212) | 2.357 |

## METHODS

**Sample**

- 206 Chinese American adolescents (10-19 years old; Mage = 14.42 in May 2020) living in the United States.
- The first wave of survey was conducted around May 2020 (time 1; $N = 206$) and the second wave was performed around October 2020 (time 2; $N = 123$).

**Variables**

- Indicators: Externalizing problems (i.e., conduct problems/ oppositional defiance and hyperactivity-impulsivity/ inattention), internalizing problems (i.e., depression and anxiety), school engagement (i.e., relationship with teachers, relationship with peers, and distance learning engagement)
- Covariates: COVID-19 peer discrimination, ELL status, school level, and adolescent sex

**Statistical Analysis**

- Cross-sectional latent profile analyses were conducted to decide the optimal number of profiles at each time point.
- Longitudinal measurement invariance was confirmed by examining a difference in log-likelihoods between invariance and non-invariance models.
- Logistic regression analyses were performed to identify covariates that could explain the profile transitions.
- Although the result of Little (1998)'s MCAR test showed that the data were not missing completely at random, full information maximum likelihood (FIML) was used to process the missing data (Enders & Bandalos, 2001).

## MAIN FINDINGS

- Two profiles were stably identified across two time points: complete (i.e., low mental health problems and high school engagement) and troubled well-being profiles (i.e., high mental health problems and low school engagement).
- Longitudinal measurement invariance were confirmed in a latent transition analysis without covariates.
- Students' transition from troubled to complete well-being profiles was associated with having lower levels of COVID-19 peer discrimination experiences and not being ELL.
- Students' transition from complete to troubled well-being profiles was predicted by being ELL.

## CONCLUSION

- The identification of two profiles implicates that there was a more significant discrepancy between in participants' mental health problems than in school engagement. This implies that Chinese American adolescents are likely to share similar negative experiences in their relationships with teachers and peers as well as in their learning environments.
- Since ELL status exerted significant impacts on profile transitions, early identification and intervention for ELL students are necessary.
- School mental health professionals must be able to understand the heightened risks faced by Chinese American students during the pandemic and be prepared to support them mitigate the harmful effects of peer discrimination.