Patterns of Family, School, and Community Promotive Factors and Health Disparities Among Youth: Implications for Prevention Science

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Abstract

Increasing knowledge of factors that promote health among youth from diverse backgrounds is an important step towards addressing health disparities. Although many promotive factors have been identified individually, there is an overabundance of research on risk factors, and a comparable dearth of knowledge regarding the influence of combinations of promotive factors. The current study examined how promotive factors across family, school, and community contexts co-occur to promote health among youth of different race/ethnicity. Utilizing a nationally representative sample of Black (10%), Latinx (12%), and White (77%) youth ages 12–17 ($N = 30,668$), latent class analysis was employed to identify classes of youth who endorsed homogenous patterns of promotive factors. Associations between class membership and health were explored. Each subsample was best characterized by its own 4-class model, with significant differences in patterns of promotive factors experienced by Black, Latinx, and White youth. Youth health outcomes also varied significantly by class membership ($p < .05$). Greater access to more promotive factors was associated with better health, and low access to community and school promotive factors was associated with worse health. Results suggest that increasing promotive factors in school, family, and community settings may help to prevent poor health outcomes; however, jointly addressing discrimination against racial/ethnic minority youth through education, policy, and practice is also needed to address health disparities.

Keywords Promotive factors · Youth health · Health disparities · Latent class analysis · National Survey of Children's Health

Reducing economic burden and preventable mortality related to non-communicable diseases is a global priority (O'Neil et al. 2015). In the USA, it is especially important to focus on racial/ethnic minorities in this work, as they face rates of morbidity and mortality disproportionate to those of their White counterparts (Alegria et al. 2015). Furthermore, these health disparities confer a negative impact on the nation's population health and economy, and the need to address them grows increasingly urgent as racial/ethnic minority populations in the USA continue to increase. In fact, racial/ethnic minorities now make up more than half of the US population of children under 5 years old (Cabrera 2013). Scholars have called for strength-based, ecological approaches to understanding social determinants of health and disparity, in contrast to traditional deficit-oriented models focused solely on risk factors (Barkley et al. 2013; Kreipe 2011; Marmot 2005). Increasing current understanding of factors that promote health among youth of different racial/ethnic backgrounds can inform targeted, effective early prevention and intervention programs for youth at risk of health problems (American Psychological Association 2008; Cabrera 2013).

A promotive factor is any characteristic (including those of a biological, psychological, family, or community nature) associated with healthy development. Although oftentimes individual promotive factors are studied, the characteristics of the environments, or social ecologies, surrounding the individual and the ways in which they interact are critical to consider (Risco et al. 2016). In fact, theory and research highlight the centrality of the socioecological context, including the

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presence of other promotive factors and the transactional interaction of factors across multiple environmental contexts in predicting youth health (Kia-Keating et al. 2011; Risco et al. 2016). Bronfenbrenner and Morris's socioecological theory provides a framework to consider how various factors contribute to a child's development in a transactional matter, including the characteristics of an individual, as well as family, school, community, societal, and cultural factors (Bronfenbrenner and Morris 2006; Kia-Keating et al. 2011).

Promotive factors may differ across cultural contexts—in other words, what is promotive for some may not be promotive for all (Sabina and Banyard 2015). A major shortcoming in existing empirical research is that scholars have often used models of White, middle-class populations as the standard for comparing research results from nonwhite populations (García Coll et al. 1996). García Coll et al.'s (1996) seminal Integrative Model for the Study of Developmental Competencies in Minority Children, subsequently referred to as the Integrative Model, builds from the socioecological model of development to additionally incorporate the unique elements of culture, marginalization, and oppression as influencing sociocultural contexts for ethnic minority child development (Perez-Brena et al. 2018).

Current Study

Drawing on Bronfenbrenner and Morris's (2006) and García Coll et al.'s (1996)theories, the current study aimed to understand the occurrence and influence of promotive factors across various socioecological contexts for Black, Latinx, and White youth. To do so, a person-centered approach was utilized with a nationally representative sample to identify homogeneous patterns of promotive factors from family, school, and community contexts. Subsequently, the health of youth with different promotive profiles was examined, while accounting for demographics of sex, income, age, and parent physical and mental health. Informed by the Integrative Model (García Coll et al. 1996), analyses were stratified by race/ethnicity to acknowledge that youth of different race and ethnicity may experience differences in their experiences of promotive factors, as well as the relative impact of these patterns of promotive factors on health. Models were then tested for invariance across race/ethnicity to explore any significant differences in typical patterns of promotive factors experienced by youth of difference race/ethnicity. It was expected that classes corresponding to higher levels of promotive factors would be associated with better health. The publicly available data in the current study were drawn from a large, nationally representative study; therefore, the decision of which particular variables to examine from each socioecological context was both practically driven, based on the existing dataset, as well as

theoretically and empirically driven, based on literature supporting the variables' contribution to healthy development.

Family Promotive Factors The family promotive factors assessed in the current study included sharing meals together, low parenting stress, and good parent-child communication. Existing research on promotive family attributes shows that when families provide warmth, structure, monitoring, and physical and emotional support, they promote resilience (a greater ability to overcome adversity) among youth (Alegria et al. 2015; American Psychological Association 2017; Southwick and Charney 2012). Relatedly, eating meals together is associated with family connectedness and has been linked to positive youth development because of the routine, consistency, socialization, and communication opportunities they provide. Additionally, eating together is important for nutrition (Eisenberg et al. 2004). Low parenting stress has also been repeatedly linked to decreased externalizing and internalizing symptoms in children (Cronin et al. 2015). Finally, good parent-child communication, or the ability of family members to share feelings and needs with one another and respond positively, is significantly related to adolescent well-being and health-promoting behavior (Applied Survey Research 2014; Bireda and Pillay 2017).

School Promotive Factors Measures of school context utilized in the current study included levels of engagement and safety. School safety plays an important role in positive youth development and protects against mental, emotional, and behavioral disorders (American Psychological Association 2017; Applied Survey Research 2014). Additionally, multiple studies have linked school engagement to a decreased likelihood of outcomes like depression, delinquency, and substance use (Alegria et al. 2015; American Psychological Association 2017; Benzies and Mychasiuk 2009; Gonzales et al. 2014).

Community Promotive Factors Finally, a number of community-level promotive factors were utilized in the current study—participation in community activities, participation in service work, presence of an adult mentor, neighborhood safety, and access to family-centered healthcare. An extensive body of research suggests that neighborhood safety significantly reduces risk of emotional and behavioral disorders (American Psychological Association 2017; Applied Survey Research 2014), while another area of research has identified the positive impact that adult mentors and role models have on youth resilience (Benzies and Mychasiuk 2009; Southwick and Charney 2012). Furthermore, participation in organized activities has been linked to the prevention of youth problem behaviors and promotion of positive youth development (Smith et al. 2018). Relatedly, volunteering and service work has been associated with lower rates of health-risk behavior and higher levels of wellbeing (Child Trends

Data Bank 2015). Finally, healthcare literature continues to emphasize the importance of family-centered healthcare, an approach that treats patients and families as integral members of the care team, taking into account their preferences and values. The provider is also culturally aware and considerate, both of their own and others' beliefs and assumptions (American Academy of Pediatrics 2012; American Psychological Association 2017; Kohn-Wood and Hooper 2014). Lack of family-centered care is linked to racial/ethnic disparities in healthcare coordination needs (Toomey et al. 2013).

Method

Participants

All study procedures were granted human subjects approval by the University of California, Santa Barbara Institutional Review Board. Additionally, all procedures were performed in accordance with the ethical standards of the Declaration of Helsinki. The current sample consisted of youth aged 12–17 who reported their race/ethnicity as one of the three largest subgroups in the USA—Black, White, or Latinx ($N = 30{,}668$), on the 2011/12 National Survey of Children's Health (NSCH). The NSCH was a cross-sectional, random-sampling survey. One focal child from each household was selected, and an adult in the household knowledgeable about the chosen child (69% mothers) answered questions on topics that included child's physical and emotional health, and family, school, and community characteristics. Further details on the NSCH design and methodology can be found online and in existing literature (Bethell et al. 2016; Slopen et al. 2016). Sample descriptive information is presented in Table 1. The mean age of the current sample was 14.62 ($SD = 1.73$). The sample was 53% male, 77% White, 12% Latinx, and 10% Black. Lastly, 12% of the sample was below the federal poverty level.

Measures

Survey respondents answered questions regarding sex, race/ethnicity, and family income for the child participant. Additional demographic information included self-rated parent physical and mental health, measured separately on a Likert scale from 1 (excellent) to 3 (poor). Ten promotive factors were assessed across three domains: family, school, and community contexts (in some cases, items were transformed from their original format to be binary). All of these indicators, in the same or a closely adapted format, have been utilized in existing literature examining children's health and wellbeing (Bos et al. 2016; Cprek et al. 2015; Kandasamy et al. 2018; Lee et al. 2008).

Family Context Promotive factors relating to the family context included the following:

1. Family meals together (1 = 4 days to everyday, 0 = 0 to 3 days)
2. Low parenting stress (1 = parents seldom felt stress from parenting, 0 = parents often felt stress from parenting)
3. Parent-child communication (1 = parents and their children could share ideas or talk about important matters "somewhat well" or "very well," 0 = parents and their children could share ideas or talk about important matters "not well at all" or "not very well").

Community Context Promotive factors relating to the community context included the following:

4. Participation in community activities (1 = child participated in one or more organized activities outside of school in the past 12 months, including sports, clubs, activities, or lessons, 0 = child did not participate in any organized activities outside of school)
5. Participation in service work (1 = child participated at least once in service/volunteer work at school, church, or in the community, 0 = child never participated)
6. Presence of an adult mentor in the child's life (1 = there was the presence of at least one adult mentor in school, neighborhood, or community whom child could rely on for guidance, 0 = there was no mentor present in child's life)
7. Neighborhood safety (1 = child was usually or always safe, 0 = child was never or sometimes safe)
8. Family-centered care (based on five questions assessing if child's healthcare provider spent enough time with them, listened carefully, was sensitive to family values and customs, gave needed information, and treated the family like a partner; 1 = child had family-centered care, 0 = child did not have family-centered care).

School Context Promotive factors relating to the school context included the following:

9. School engagement (based on measures about whether the child cared about doing well in school and whether they completed their homework; 1 = child was sometimes or always engaged, 0 = child was never or rarely engaged in school)
10. School safety (1 = child was usually or always safe, 0 = child was never or sometimes safe).

Participants' overall health status was measured with one question asking respondents to rate their child's overall heath

Table 1 Participant health and demographic information

	Black (N = 3190, 52% M)	Latinx (N = 3780, 53% M)	White (N = 23,698, 53% M)
Total promotive factors M (SD)	7.67 (1.76)	7.74 (1.8)	8.71 (1.37)
P-C communication (% endorsed)	95.2	94	97
Low parent stress (% endorsed)	83.2	83.3	91.9
Meals together (% endorsed)	58.9	72.7	72.6
Mentor (% endorsed)	90.8	81.2	96.3
Organized activities (% endorsed)	81.5	78.6	88.2
Service work (% endorsed)	76.8	73.6	85.8
School engagement (% endorsed)	68.4	77.4	78.1
F-C care (% endorsed)	56.9	52.3	77.3
School safety (% endorsed)	83.3	87	95.8
Neighborhood safety (% endorsed)	79.3	83.2	95.5
Age M (SD)	14.57 (1.74)	14.45 (1.75)	14.65 (1.73)
Income level M (SD)	2.43 (1.13)	2.38 (1.13)	3.15 (.93)
Child general health M (SD)	1.75 (.98)	1.88 (.98)	1.47 (.74)
Mother's physical health M (SD)	1.65 (.77)	1.72 (.80)	1.39 (.65)
Mother's mental health M (SD)	1.45 (.68)	1.49 (.67)	1.28 (.56)
Father's physical health M (SD)	1.55 (.73)	1.40 (.63)	1.37 (.62)
Father's mental health M (SD)	1.34 (.60)	1.64 (.76)	1.24 (.52)

P-C communication good parent-child communication, *F-C care* family-centered healthcare. Income is measured on a 4-point scale, 1 = 0–99% of the federal poverty level, 2 = 100–199% of the federal poverty level, 3 = 200–399% of the federal poverty level, 4 = 400% or greater of the federal poverty level. General health is rated on a scale of 1 ("excellent") to 5 ("poor"). Parent physical and mental health is rated on a scale of 1 ("excellent") to 3 ("poor")

on a Likert scale from 1 ("excellent") to 5 ("poor"). Health issues for children were measured with a count variable reporting the total number of diagnosed health conditions out of 18 listed, including: learning disability, attention deficit hyperactivity disorder, depression, anxiety, behavioral/conduct problems, autism spectrum disorder, developmental delay, intellectual disability, cerebral palsy, speech problems, asthma, diabetes, Tourette syndrome, seizure disorder, hearing problems, vision problems, bone/joint problems, or brain injury/concussion.

Statistical Analyses

Latent class analysis (LCA) was performed with Mplus version 8 (Muthén and Muthén 1998–2017) using the ten promotive factors previously described as item indicators. The process of LCA identifies mutually exclusive "classes," or groups of children, defined by their response patterns to a series of item indicators. Classes are defined by both item probabilities, which are the probabilities of members in a certain class endorsing a particular item, and class proportions, or the proportion of the sample represented in each latent class. The current study followed Masyn's (2013) guidelines for best practices for model enumeration and selection in mixture modeling. Thus, final models were selected based on the commonly accepted fit criteria presented in Table 2 while also

considering parsimony, class homogeneity, class separation, and substantive meaning of classes (Masyn 2013; Nylund-Gibson and Choi 2018). All models were stratified by race/ethnicity (White, Black, or Latinx). Because the White subsample was substantially larger than other subsamples, enumeration was performed on both the full subsample and random selections of 15% and 50% of the subsample to assess whether results were sensitive to the large sample size.

Following identification of the three final LCA models for Black, Latinx, and White youth, similarities and differences in models were examined. Measurement invariance across the three groups was tested by comparing the log likelihood differences of two models: a model where parameters were freely estimated across race/ethnicity, and a model where parameters were constrained to be equal across race/ethnicity. Analyses indicated that there was a significant decrease in model fit when constraining the parameters to be equal across all three groups ($p < .001$); therefore, models were explored separately by race/ethnicity, including examination of the relationship between class membership and auxiliary variables (Laska et al. 2009).

Associations between class membership and auxiliary variables were tested separately for each racial/ethnic subsample using the manual Bolck, Croons, and Hagenaars (BCH) method (Asparouhov and Muthén 2015; Bolck et al. 2004). The manual BCH method allowed for concurrent testing of

Table 2 Fit indices for LCA models for Black, Latinx, and White youth

Race/ethnicity	Number of classes	Log likelihood	BIC	ABIC	*p* value of BLRT	*p* value of LMRT	*BF*	*cmP*
Black (*N* = 3190, 52% M)	1	− 15,485.48	31,051.64	31,019.86	–	–	0.00	0.00
	2	− 14,993.94	30,157.31	30,090.58	0.00	0.00	0.00	0.00
	3	− 14,874.99	30,008.16	29,906.48	0.00	0.00	0.00	0.00
	4	− 14,812.89	*29,972.69*	*29,836.06*	0.00	*0.00*	*> 100.00*	*1.00*
	5	− 14,788.00	30,011.65	29,840.07	0.00	0.36	>100.00	0.00
	6	− 14,770.69	30,065.79	29,859.25	0.00	0.82	–	0.00
Latinx (*N* = 3780, 53% M)	1	− 18,258.5	36,599.38	36,567.6	–	–	0.00	0.00
	2	− 17,574.18	35,321.34	35,254.61	0.00	0.00	0.00	0.00
	3	− 17,465.87	35,195.34	35,093.66	0.00	*0.00*	0.00	0.00
	4	− 17,398.17	*35,150.55*	35,013.92	0.00	0.13	*23.84*	*0.96*
	5	− 17,356.04	35,156.90	34,985.31	0.00	0.19	>100.00	0.04
	6	− 17,323.00	35,181.43	34,974.89	0.00	0.40	0.00	0.00
White (*N* = 23,698, 53% M)	1	− 78,730.31	157,561.36	157,529.58	–	–	0.00	0.00
	2	− 75,430.86	151,073.25	151,006.51	0.00	0.00	0.00	0.00
	3	− 75,191.62	150,705.59	150,603.89	0.00	0.00	0.00	0.00
	4	− 74,952.88	150,338.91	150,202.26	0.00	0.00	0.00	0.00
	5	− 74,842.34	150,228.63	150,057.02	0.00	0.00	0.00	0.00
	6	− 74,775.01	*150,204.76*	*149,998.2*	0.00	*0.00*	*> 100.00*	*1.00*
	7	− 74,748.51	150,262.58	150,021.05	0.00	0.14	–	0.00

BIC Bayesian information criterion, *ABIC* adjusted BIC, *BLRT* bootstrap likelihood ratio test, *LMRT* Lo-Mendell-Rubin test, *BF* Bayes factor, *cmP* correct model probability. Lower values of BIC and ABIC indicate better fit. BLRT and LMRT values indicate if the current model fits significantly better than the model with one less class. The *BF* compares the current model to a model with one additional class; greater values indicate greater evidence for current class. The *cmP* estimates the probability of each model that was enumerated being "correct" in comparison to the other models (Masyn 2013; Nylund-Gibson and Choi 2018). Italic indicates which model is supported by each fit statistic when applicable

covariates and distals, accounting for the direct relationship between covariates (sex, income, age, parent physical and mental health) and distal outcomes (overall health and health condition count) when testing their relationships with the latent class variable. Typically, the term "distal" connotes a measure taken at a later point in time; however, given the current study's cross-sectional nature, the distal measures used were proximal. The described model is presented in Fig. 1.

Results

Descriptive information, reported in Table 1, illustrates that White youth had access to the greatest number of promotive factors (*M* = 8.71, *SD* = 1.37), followed by Latinx youth (*M* = 7.74, *SD* = 1.80) and then Black youth (*M* = 7.67, *SD* = 1.76). Greater proportions of the White subsample endorsed all promotive factors except having meals together, for which White and Latinx youth had approximately equal levels of endorsement. Finally, White youth had the highest levels of overall health, parent physical and mental health, and household income. Latinx youth had the lowest mean count of health conditions.

Fit indices for all three LCAs are presented in Table 2 (also see Table 2 for information on interpretation of fit indices). For Black youth, a 4-class model was selected based on indication from all fit indices except for the bootstrapped likelihood ratio test (BLRT). Entropy, a measure of how well differentiated classes are on a scale from 0 to 1 (Celeux and Soromenho 1996) was moderate at .66. For Latinx youth, a 4-class solution was also selected as the best-fitting model based on the majority of fit indices (Bayesian information criterion, BIC; Bayes factor, *BF*; and correct model probability, *cmP*). Entropy was .60. Lastly, for White youth, fit indices from the full subsample enumeration indicated a 6-class solution. However, the sensitivity analyses using the smaller subsamples suggested a 3- or 4-class solution. After close study, the 4-class model, with entropy of .74, was selected as the final solution for the sake of parsimony and model interpretability.

Figure 2 displays the conditional item probability plots for all final models. Item indicators are arranged on the *x*-axes in clusters of four different categories: family, school, community, and safety. The decision of how to cluster items was based on both the socioecological theoretical framework of the current study and empirical results. For example, community and neighborhood safety consistently had similar probabilities in each of the classes in the final LCA models; thus, were put
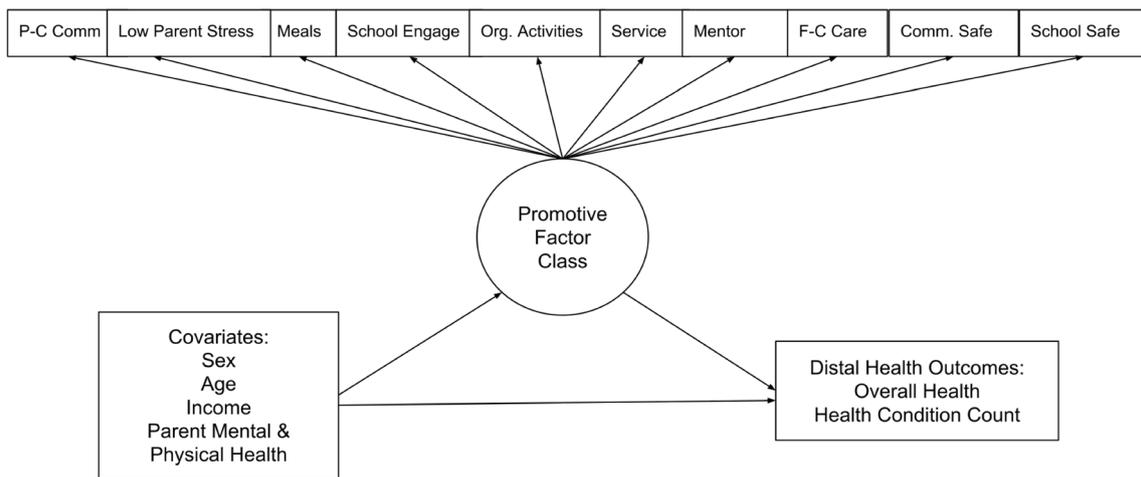
Fig. 1 Latent class analysis model of child promotive factors, demographic covariates, and distal health outcomes. *Note.* Separate models were run for Black, Latinx, and White youth

into their own "safety" category rather than including neighborhood safety in the "community" context and school safety in the "school" context. Classes were given the same names across the three subsamples, based on the patterns that emerged regarding probability of youth in each class endorsing each promotive factor. Class names included *high promotive factors* (characterized by high probability of endorsing the majority promotive factors; this class contained 63% of Black youth, 55% of Latinx youth, and 77% of White youth), *low*

safety (characterized by being the most likely to have low school and community safety; this class contained 16% of Black youth, 14% of Latinx youth, and 4% of White youth), *low community resources* (characterized by being less likely to participate in community service and organized, extracurricular activities; this class contained 12% of Black youth, 24% of Latinx youth, and 11% of White youth), and *low family and school resources* (characterized by having lower levels of promotive factors like good parent-child communication, low
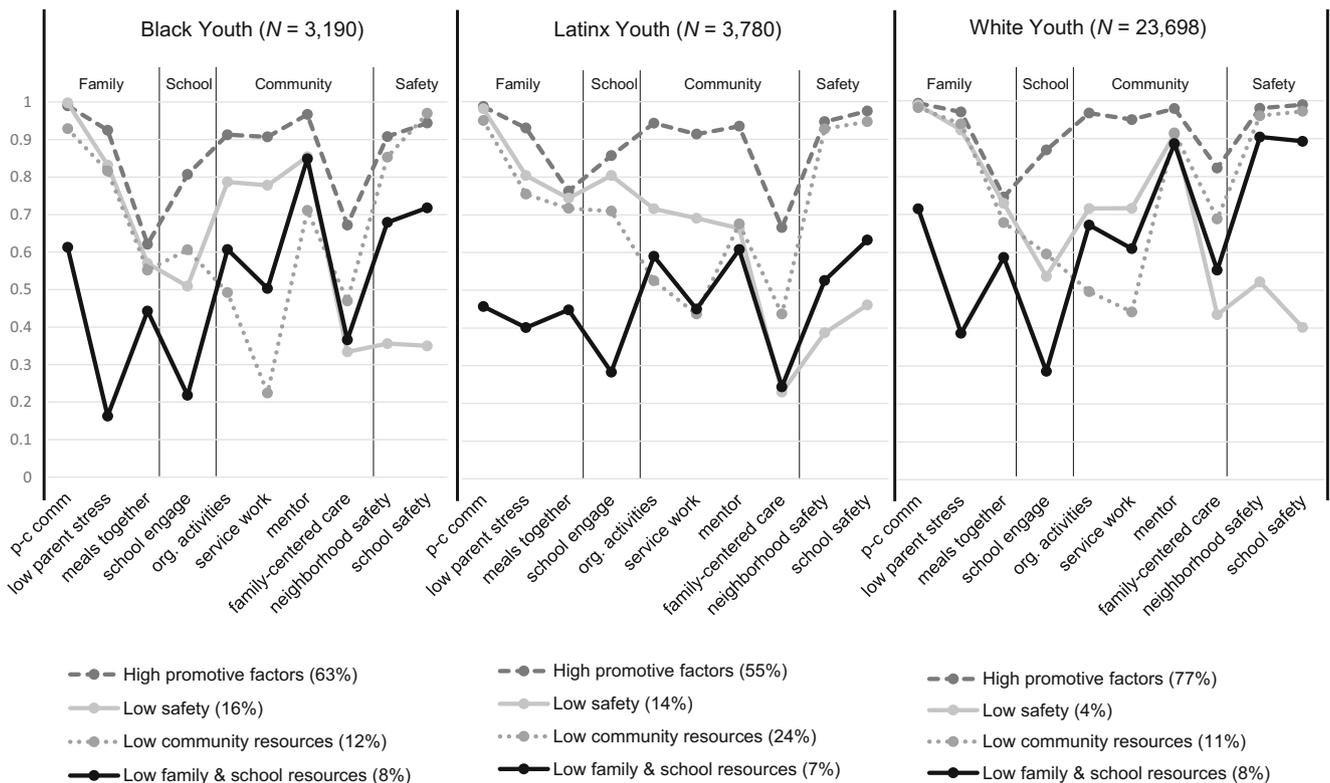

Fig. 2 Conditional item probability plots of promotive factor indicators. *Note.* Values on the *y*-axis represent probability of each class endorsing the presence of each promotive factor indicator located on the *x*-axis

parent stress, and school engagement; this class contained 8% of Black youth, 7% of Latinx youth, 8% of White youth).

Because invariance across subsamples (Black, Latinx, and White youth) was not established, relationships between demographic covariates, distal health outcomes, and class membership was evaluated separately for each of the three final LCA models (Laska et al. 2009). Demographic covariates, used as controls in the current study, are reported in Table 3. There were few statistically significant differences across age, sex, income level, or parent mental and physical health for youth in different classes. The most significant differences between levels of various covariates occurred for White youth in *high promotive factors*. Compared to White youth in other classes, youth in this class were generally significantly more likely to be younger, female, wealthier, and have parents with better physical and mental health.

Table 3 also displays distal means and standard errors for each class. Generally, across all subsamples, youth in *high promotive factors* had the lowest number of health conditions, and the best overall health. The one exception to this statement is that Black youth in *low community resources* had the best health outcomes; however, this value did not significantly differ from the overall health of youth in *high promotive factors*. Across all subsamples, significant differences ($p < .05$) consistently emerged on health outcomes between youth in *high promotive factors* and *low family and school resources*. Youth in *low safety* and *low community resources* tended to have health levels falling in between the health of youth in *high promotive factors* and *low family and school resources*. However, these values varied in whether they were significantly different from health of youth in other classes.

Despite each of the three final models containing four classes and being labeled with the same names, invariance testing revealed that there were significant differences in the emergent classes across the three racial/ethnic groups. Some differences in the classes that emerged across race/ethnicity are observable in the item probability plots displayed in Fig. 2. For example, within the *low family and school resources* class, White youth were more likely to have higher levels of school and neighborhood safety compared to Black and Latinx

Table 3 Distal and covariate results by race/ethnicity and class membership

Race/ethnicity	Promotive factor class	Distal outcomes		Covariates						
		Count of health conditions	Parent-rated overall health	Older age	Female	Percent above the Federal Poverty Line	Mother's worse physical health	Father's worse physical health	Mother's worse mental health	Father's worse mental health
Black (N = 3190, 52% M)	High promotive factors (63%)	.41 (.04)[a]	1.57 (.03)[a]	3[a]	1[a]	1[a]	4[a]	3[a]	4[a]	3[b]
	Low safety (16%)	.73 (.19)[a]	1.70 (.10)[ab]	2[a]	2[b]	4[b]	2[ab]	2[a]	3[a]	2[ab]
	Low community resources 12%)	.60 (.25)[a]	1.47 (.15)[ab]	4[a]	4[b]	3[bc]	1[b]	4[a]	1[a]	4[b]
	Low family and school resources (8%)	1.89 (.47)[b]	1.99 (.21)[b]	1[a]	3[ab]	2[ac]	3[ab]	1[a]	2[a]	1[a]
Latinx (N = 3780, 53% M)	High promotive factors (55%)	.25 (.04)[a]	1.67 (.03)[a]	2[a]	2[bc]	1[b]	4[a]	4[b]	4[b]	3[ab]
	Low safety (14%)	.38 (.09)[a]	2.09 (.08)[b]	4[a]	1[b]	3[a]	1[a]	2[a]	2[a]	4[b]
	Low community resources (24%)	.68 (.12)[b]	1.96 (.08)[b]	3[a]	3[ac]	4[a]	3[a]	3[ab]	3[a]	2[ab]
	Low family and school resources (7%)	2.11 (.29)[c]	2.58 (.13)[c]	1[a]	4[a]	2[a]	2[a]	1[a]	1[a]	1[a]
White (N = 23,698, 53% M)	High promotive factors (77%)	.37 (.01)[a]	1.35 (.01)[a]	4[ab]	1[a]	1[a]	4[a]	4[a]	4[a]	4[a]
	Low safety (4%)	.59 (.10)[b]	1.73 (.06)[b]	3[bc]	2[a]	3[b]	1[b]	1[b]	2[b]	2[b]
	Low community resources (11%)	.54 (.08)[b]	1.58 (.04)[c]	1[c]	4[b]	4[b]	2[b]	3[ac]	3[ab]	3[ab]
	Low family and school resources (8%)	2.71 (.11)[c]	1.90 (.04)[d]	2[c]	3[c]	2[c]	3[c]	2[bc]	1[c]	1[b]

Distal outcomes are reported with means and standard errors of health outcome across class, accounting for the direct association between covariates and distals. For covariates, classes are ranked based on either likelihood of endorsing covariate (for female) or on likelihood of endorsing a greater amount of the covariate (age, income, worse health). Significant differences between covariates and distal outcomes within classes are reported by subscripts. Classes that do not share subscripts differ at $p < .05$

youth, Black youth were more likely to have higher parent stress compared to White and Latinx youth, and Latinx youth were less likely to rate good parent-child communication. Within their respective *low safety* classes, Black youth were more likely to have lower levels of school and community safety compared to White and Latinx youth. Within their respective *low community resources* class, Black youth were much less likely to be involved in service work compared to Latinx and White youth.

Discussion

The current study contributes to recent calls for further research on contextual influences of resilience across diverse groups of youth (Seaton et al. 2018) by drawing on a nationally representative sample to identify patterns of promotive factors experienced by Black, Latinx, and White youth across the socioecological contexts of family, school, and community. Results illustrate how patterns of promotive factors occur in the lives of youth across the nation and are associated with health outcomes. Notably, findings illustrate both similarities and differences in these patterns for youth of different race/ethnicity. All subsamples were best characterized by 4-class models termed *high promotive factors*, *low safety*, *low community resources*, and *low family and school resources*. These similarities suggest that a subsection of youth across all races/ethnicities experience high levels of promotive factors and good health, and outside of this subsection, youth have various levels of access to clusters of resources across families, schools, and communities. Youth in classes with greater access to promotive factors had better health. Youth in classes with low family and school resources, for example, low parent-child communication, high parent stress, and low school engagement, tended to have the worst health outcomes.

In addition to similarities across subsamples, there were a number of differences. The finding that invariance was not present across subsamples suggests that Black, Latinx, and White youth have notably, statistically different experiences of promotive factors. This finding aligns with theory that the developmental context for ethnic minority youth in the USA is inherently different than that of White youth; given unique sociological, cultural, and environmental influences on their development such as social position and experiences of racism and segregation (García Coll et al. 1996). Additionally, given the findings, it is worth considering how the influence of racial privilege may have a differential impact on the development of White youth, in contrast to the racial oppression experienced by Black and Latinx youth (Seaton et al. 2018).

On average, the White subsample reported higher income and better overall health compared to Black and Latinx youth. Regarding count of health conditions, the highest values were

reported for Black youth, followed by White youth and then Latinx youth. This finding aligns with results of past research (Kitsantas et al. 2013), leading scholars to conclude that Latinx families may be less likely to seek medical care due to economic and documentation difficulties, and therefore experience under-detection and treatment of chronic illness. As invariance was not established, racial/ethnic differences across final LCA models can only be described observationally (as opposed to statistically); however, results illustrated that a larger proportion of White youth were in their respective class characterized by high levels of promotive factors and better health, compared to Black and Latinx youth. Additionally, classes characterized similarly across subsamples (i.e., *high promotive factors*) were generally associated with worse overall health for Latinx and Black youth compared to White youth.

The racial/ethnic differences that emerged in the current study suggest that racial/ethnic minority youth have lower access to promotive factors than do White youth. Furthermore, in terms of health, Black and Latinx youth who have access to many promotive factors may not be benefiting as much as White youth with the same types of promotive factors. In line with the Integrative Model (García Coll et al. 1996), these findings provide support to a growing body of literature arguing that racial discrimination and minority stress play an important role in child development and existing health disparities. Indeed, research suggests that chronic and repeated exposure to stress associated with discrimination can cause potential damage to systems in the body expressed through one's long-term physical and mental health (Cooke et al. 2014; Sanders-Phillips 2009). Furthermore, racial and ethnic minorities face disproportionate rates of interpersonal, systemic, and institutionalized racism, unequal access to resources, more residential environment challenges, and less educational opportunity (Barkley et al. 2013). Additionally, although higher socioeconomic status for racial/ethnic minority families may create greater access to promotive factors, it can also increase social isolation-related stress due to residential and economic segregation in the USA (Assari et al. 2017). Further research should investigate whether increased access to certain promotive factors for Black and Latinx families is inversely associated with a loss in social support and/or community, and if this in turn contributes to worse health.

Limitations and Future Directions

There are several limitations of the current study, as well as important considerations for future research. Although the current sample is large and geographically diverse, it only includes youth from three racial/ethnic groups. There is a wide cultural and ethnic diversity of children across

the USA, and results of the current study may not apply to other groups. Additionally, it is important to recognize and study intragroup variability, in addition to intergroup diversity.

Regarding the measures utilized in the current study, all potential promotive factors in school, community, and family environments were not included, and it will be useful for future research to also explore the influence of factors such as classroom quality and management, teacher-student relations, family structure, and community assets. For some domains, it is important to consider whether having youth respondents (as opposed to parents) may have offered a different perspective—for example, regarding school safety, school engagement, or health. Additionally, dichotomizing the promotive factor variables provided interpretable and important information for the current analyses; however, in doing so, more nuanced information may have been obscured. It is also important to note that entropy of the models in the current study was not high enough to suggest that individuals can be accurately classified into one of the four classes that emerged for each subsample. Also notable is that the count of health conditions utilized in the current study included a wide range of health problems, including both physical and mental health conditions. Future research may want to separate these health conditions into subcategories to allow for more detailed examination of associations between promotive factors and various health conditions.

Regarding analytical considerations of the current study, its cross-sectional design does not allow for assertions of causality or directionality regarding the relationship of promotive factors and health. Furthermore, because race/ethnicity invariance was not supported, differences in promotive factors and associated health outcomes across race/ethnicity were not able to be tested statistically, and are only reported observationally. Finally, an important piece of the Integrative Model is the influence of racism and oppression on ethnic minority youth (García Coll et al. 1996), and these constructs were not specifically examined in the current study. Future research should utilize longitudinal studies to study the protective impact of promotive factors in the face of racism and other adversities.

Implications for Prevention Science

Results of the current study illustrate how youth of different race/ethnicity tend to access various promotive factors in clusters across different environmental contexts. This knowledge holds important implications to inform prevention science research and practice. Results indicate that generally, more promotive factors, including family well-being, community involvement, school and neighborhood safety, and school engagement, are associated with better health for all youth. One major advantage of utilizing a person-centered approach is that it provides information from people's lived experiences in the real world, in order to inform intervention (Syvertsen et al. 2010). The findings of the current study suggest that children will have the best health outcomes when they have access to promotive factors across multiple environmental contexts, and that missing promotive factors within families and schools may be especially detrimental to youth health. Observational findings also suggest that compared to White youth, racial/ethnic minority youth experience a lesser health benefit from the promotive factors tested here, even when accounting for demographic indicators such as household income. Future research must continue to examine the sources and solutions for this discrepancy, including the role of systemic and institutional discrimination, minority stress, and racial trauma (Williams and Mohammed 2013).

There is a substantial body of existing research on intervention and prevention programs that target the promotive factors examined in the current study. For example, there are a number of family-strengthening interventions designed to decrease parent stress and increase parent-child communication (Barton et al. 2018; Caspe and Lopez 2006; Dawson-McClure et al. 2017; Hurwich-Reiss et al. 2014). In addition to family-strengthening interventions, schools and communities also have an important role to play in youth developmental processes and health outcomes. Results of the current study suggest that implementing policies and practices to improve neighborhood safety and increase opportunities for service and volunteer work can contribute to healthy development among youth. Additionally, pediatricians and other healthcare providers must continue to increase their focus on providing family-centered care (American Academy of Pediatrics 2012). Finally, schools can promote youth health through prioritizing safety and promoting student engagement, and more research is needed on such approaches.

Improving access to health-promoting factors for youth across family, school, and community contexts is important to youth health outcomes, particularly for racial/ethnic minority youth and among communities where disparities exist. An understanding of the different forms of oppression, including unequal access to resources, helps to inform and better address health disparities that exist for ethnic minority youth. In order to achieve health equity, comprehensive approaches that both promote assets and decrease discrimination in research, policy, and practice should continue to be tested to examine the ways to best serve diverse youth and communities.

Compliance with Ethical Standards

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