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Shiyou Wu

Arizona State University, wushiyou@gmail.com

Kalah M. Villagrana

Arizona State University, kalah.villagrana@asu.edu

Siobhan M. Lawler

Arizona State University, Slaw@asu.edu

Renee Garbe

Arizona State University, Renee.Garbe@asu.edu

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Cover Page Footnote

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School Lunch Participation and Youth School Failure: A Multi-Racial Perspective

Shiyou Wu
Kalah M. Villagrana
Siobhan M. Lawler
Renee Garbe
Arizona State University

In the United States, students from low-socioeconomic status and minority ethnic groups graduate from high school at lower rates than their peers. Limited studies exist about the risk and protective factors that affect the disproportionate graduation rates by income and ethnicity. Using the 2016 Arizona Youth Survey data (N = 32,178), this study aims to explore the relationship between the National School Lunch Program (NSLP) participation and school failure, and other risk and protective factors from a multi-racial perspective. Logistic regressions were conducted on the total sample and the six ethnic subsamples (i.e., White, Latino, Black, American Indian, Asian/Pacific Islander, and Mixed). Results showed a significant difference in school failure between free lunch participants and nonparticipants for the total youth sample and for the White, Latino, Black and Mixed subsamples. However, a significant difference in school failure between free lunch participants and reduced price lunch participants was only found for the total sample but not for any of the six ethnic subsamples. Significant risk factors across most ethnic groups include the participant being suspended from school and peer suspension/dropout. Protective factors across most ethnic groups were family management and school commitment. Findings highlight the need for more culturally responsive interventions to target school failure for low-income students across ethnic groups.

Keywords: welfare participation, National School Lunch Program, school failure, low-socioeconomic status, multi-racial, Arizona Youth Survey

In the United States, the average high school graduation rate in the 2015 to 2016 school year was 84% compared to 77.6% for students from low-income families (DePaoli et al., 2018; U.S. Department of Education, National Center for Education Statistics, 2018). Research has demonstrated that low-socioeconomic status (SES) is a significant predictor for dropping out of high school (Bradley & Renzulli, 2011; Rumberger, 1987; Rumberger & Lim, 2008; Weis et al., 1989). Other common predictors include poor course performance, absenteeism, and behavior problems (Battin-Pearson et al., 2000; U.S. Department of Education, 2016). Less conclusive research exists about how other risk and protective factors relate to differences in academic performance for students from low-SES backgrounds (Okilwa, 2016; Suh et al., 2007). Furthermore, previous studies have mixed findings on the relationship between ethnic groups and the risk and protective factors of high school dropout (Rumberger & Lim, 2008). Additional research is needed to examine the factors associated with high school dropout rates for students by ethnic groups and SES. Therefore, the current study aims to explore the relationship between National School Lunch Program (NSLP) participation (as an indicator of SES) on school failure and to examine whether that relationship differs by racial and ethnic groups.

Disparities in Educational Outcomes

In the United States, high school graduation rates vary by ethnicity. In 2016 to 2017, national high school graduation rates were highest for Asian/Pacific Islander students (91%), followed by White (89%), Hispanic (80%), Black (78%), and American Indian/Alaskan Native students (72%) (Snyder et al., 2019). Rumberger and Lim (2008) conducted a systematic review of research from the 1980s to the early 2000s examining factors that influenced high school dropout. More than 200 studies examined the relationship between ethnicity and school dropout.

This review found mixed results in the studies, which suggests that dropout may be better explained by additional risk and protective factors, including family background or educational performance (Rumberger & Lim, 2008). Despite being widely studied, as referenced in the systematic review conducted by Rumberger & Lim (2008), there are still inconclusive results about which risk and protective factors most influence the disproportionately low graduation rates for minority groups.

About 77% of students from low-income families graduate from high school compared to 90% from students from non-low-income families (DePaoli et al., 2018). A meta-analysis with 101 articles from before 1980 found SES to positively correlate with academic achievement with a mean correlation of .343 (White, 1982). In 2005, another meta-analysis, following the same methods as White, found a medium to strong correlation between SES and academic achievement with a mean correlation of .229 from studies between 1990 to 2000 (Sirin, 2005). The change in correlation could be related to improved measures of SES and academic outcomes, overall social and policy changes, or other contributing risk and protective factors. Additional studies are needed to understand the risk and protective factors that affect the relationship between SES and educational outcomes.

Before dropping out of school, students typically display a pattern of behaviors including course failure, absenteeism, and behavioral problems (Balfanz et al., 2007; Battin-Pearson et al., 2000; Rumberger & Lim, 2008; U.S. Department of Education, 2016). These behaviors are considered to be risk factors for high school dropout; however, additional risk factors may also influence school failure and dropout. A meta-analysis on 53 cases from 34 studies found a significant positive relationship between school suspension and dropout (Noltemeyer et al., 2015). Students who have a friend drop out of high school have been shown to also be more likely to drop out (Carbonaro, 1998; McIntyre, 2013; Mora & Oreopoulos, 2011). Poverty has been associated with more frequent school mobility, which can affect academic success (Fang et al., 2020; Friedman-Krauss & Raver, 2015; Rumberger & Lim, 2008). Students from low-socioeconomic status who are experiencing course failure may need different levels of support than students from families with higher income levels.

National School Lunch Program (NSLP) Participation

One program aimed at reducing student dropout risk factors associated with poverty is the NSLP, a federally-assisted meal program provided in public schools, private nonprofit schools, and residential childcare centers. The Food and Nutrition Service of the United States Department of Agriculture administers the program. In 2016, 30.4 million children in the United States participated in the NSLP (U.S. Department of Agriculture, 2017). Free lunch participation has been used as a proxy measure for SES in educational research since the development of the NSLP in the 1960s. However, there is some controversy over whether it is an appropriate measure to assess SES (Chingos, 2016; Harwell & LeBeau, 2010; Randolph & Prejean-Harris, 2017). While this may not be the most accurate measure of SES, it is the measure most commonly collected in school settings and is therefore frequently accepted as a valid measure of SES in research studies. Although studies have examined the relationship between SES and academic achievement, few have specifically examined educational outcomes related to participation in the NSLP (Anderson et al., 1992; Colgren & Sappington, 2015; National Center for Educational Statistics, 2011; Tash, 2018; Williams, 2003).

In 1992, a national study found that average test scores for students receiving free or reduced price lunch (low-SES) were lower than for students who did not participate in the school lunch program (Anderson et al., 1992). However, some low-SES students achieved high academic scores. High-achieving, low-SES students were more likely to have the protective factors of living with both parents, arriving to school on time, attending classes, and having limits on the amount of time they could spend with friends on school nights (Anderson et al., 1992). Since then, additional studies have compared short-term educational outcomes for students receiving free or reduced price lunch and those who did not. Measures of educational outcomes have included test scores and high school graduation rates. Studies found that students receiving free or reduced price lunch experienced poorer educational outcomes than students who did not participate in the NSLP (Colgren & Sappington, 2015; National Center for Educational Statistics, 2011; Williams, 2003). However, little is known about the other risk and protective factors

that affect this relationship. The limited number of studies examining the NSLP participation and school failure calls for additional research to further explore the relationship and other contributing factors.

Involvement of School Social Workers and Student Educational Outcomes

School social workers provide student supportive services designed to narrow academic achievement gaps between low-SES and minority students and their White majority peers across several different school performance indicators, including rates of school dropout (Rumberger, 2011). Schools and districts can employ social workers directly, though less than a third of schools with a majority of students qualifying for free or reduced price school lunch have a dedicated school social worker on staff (Stone, 2015). Schools without a dedicated school social worker may instead provide supportive services through collaborations between schools and community agencies, such as mental health service providers and child and family services (Franklin, 2000; Stone, 2015). These services are often viewed as ancillary rather than integral to the academic success of students (Adelman & Taylor, 2006), and are subject to budget cuts and institutional dynamics (Frey et al., 2012; Tyack, 1992). School social workers are tasked with improving academic outcomes directly through the reduction in disruptive behaviors and mental health problems among adolescents (Stone, 2015). The addition of social workers to schools that previously did not employ any has been associated with positive academic achievement trajectories and lower rates of truancy (Stone et al., 2013). Social workers indirectly improve academic outcomes of students by positively affecting school settings.

Theoretical Framework

Although students with more risk factors are more likely to drop out of high school and experience negative educational outcomes, many students with risk factors still graduate from high school and experience positive educational outcomes. The educational resilience framework can be used to understand this paradox. Educational resilience is defined as “the heightened

likelihood of success in school and in other life accomplishments, despite environmental adversities brought about by early traits, conditions, and experiences" (Wang & Gordon, 1994, p. 46). Educational resilience develops through continuous interactions between a child and characteristic features of their environment (Wang et al., 1997). Contexts that can foster the development of educational resilience include the family, peer group, community, and school (Wang et al., 1998). These environments can possess both risk factors and protective factors that can influence the development of educational resilience. Educational risk and protective factors at the individual, peer, family, school, and community levels are used in this study as covariates. By controlling for these educational risk and protective factors, we can explore the relationship between income level and school failure. Therefore, using the educational resilience framework can help researchers understand both the educational risk factors for students receiving free or reduced price lunch and the protective factors that promote educational resilience.

Using the educational resilience framework, the current study aims to broaden the understanding of the impacts of the NSLP participation on school failure by ethnic groups by addressing the following research questions:

1. Do youth who receive free lunch report different levels of school failure than students who receive reduced price lunch or neither free nor reduced price lunch (nonparticipants)?
2. Does the relationship between NSLP participation and school failure differ by ethnic group?

Materials and Methods

Data and Sample

This study used data from the 2016 Arizona Youth Survey (AYS). The AYS is administered by the Arizona Criminal Justice Commission's (ACJC) Statistical Analysis Center on a bi-annual basis. AYS aims to examine the frequency and prevalence of risky behaviors by Arizona youth. The survey also collects information about youth risk and protective factors at individual, peer, family, school, and community domains (ACJC, 2016). The

survey was conducted throughout the state of Arizona in all fifteen counties by eighth, tenth, and twelfth-grade students. All public, private, and charter schools in the state were eligible to participate and were recruited by ACJC (2018). Data was collected using a self-administered, paper-and-pencil questionnaire on a Scantron sheet in schools with limited student computer access. In schools that preferred an online survey, a self-administered online survey was used to collect data. The same questions were used for both data collection methods. Additional details about AYS are provided in ACJC (2018). For AYS 2016, 57,170 youth participated from 249 schools within fifteen counties. Of the survey participants, 50% were male and 50% were female. By ethnic groups, the sample was 47.9% White ($n = 15,408$), 37.3% Latino ($n = 11,999$), 3.0% Black ($n = 970$), 3.1% American Indian ($n = 1,006$), 3.0% Asian/Pacific Islander ($n = 963$), and 5.7% Mixed ($n = 1,832$; ACJC, 2016). The final analytic sample for the current study was reduced to 32,178. Participants with missing data were removed from the sample.

Measures

Dependent variable. To explore *school failure*, participants were asked, "Putting them all together, what were your grades like last year?" Five response categories were provided: mostly A's, mostly B's, mostly C's, mostly D's, and mostly F's. The variables were recoded into a dichotomous variable: 0 = Mostly A's, B's, or C's (indicating not failure), 1 = Mostly D's or F's (indicating school failure).

Independent variable. The aim of the study was to explore whether *free lunch participation* had an impact on the school failure of adolescents. Free lunch participation was used to indicate household SES. To answer this question, participants were divided into three groups based on responses to the question, "Do you get a free or reduced cost lunch at school?" Three response categories were provided and were recoded as 3 dummy variables: free lunch (reference group), reduced price lunch (1 = yes, 0 = no), and nonparticipation (1 = yes, 0 = no). Overall, about 40% of participants reported receiving free or reduced price lunch. The only indicator of SES in the Arizona Youth Survey is free lunch participation.

Covariates. We also controlled for variables of youth demographics, risk factors, and protective factors that related to school failure at the individual, peer, family, school, and community levels on all the analytic models that were identified in the literature. At the individual level, we controlled for *gender* (1 = male, 0 = female), *age* (as a continuous variable with a range of 12 to 19 years old), and *grade*. *Grade* was the school grade level when youth participated in the survey. It was recoded as three dummy variables: 8th grade (reference group), 10th grade (1/0) and 12th grade (1/0). Youth *ethnicity* was recoded as six dummy variables: White (reference group), Latino (1/0), Black (1/0), American Indian (1/0), Asian/Pacific Islander (1/0), and Mixed (1/0). We also controlled for whether the participant had ever been suspended from school during the last 12 months (1/0) and the *total ACE score*. For the *total ACE score*, participants were asked whether they had the following six different ACE conditions: "(a) living with anyone who was a problem drinker or alcoholic; (b) living with anyone who used illegal street drugs or who abused prescription medications; (c) living with anyone who served time or was sentenced to serve time in a prison, jail, or other correctional facility; (d) parents separated or divorced; (e) having adults in home ever slap, hit, kick, punch, or beat each other up; (f) having an adult in your home ever swear at you, insult you, or put you down." Each of the ACE conditions was recoded into a dummy variable (1 = yes, 0 = no). The *total ACE score* became a continuous variable by adding the scores from the six different ACE conditions. A higher total ACE score indicated more ACE conditions.

At the peer level, we controlled for *peer suspension/dropout* and *negative peer interactions*. For *peer suspension/dropout*, participants were asked, "How many of your best friends have been suspended or dropped out of school in the past year?" We recoded it as a dummy variable, indicating whether any of their friends had been suspended or dropped out of school (1 = yes, 0 = no). For *negative peer interactions*, participants were asked the following four questions: "(a) How often do other students make fun of you?; (b) How often do other students push or hit you?; (c) How often are other students mean to you?; and (d) How often do other students exclude you from activities?" Responses were given on a five-point scale (1 = never/almost never and 5 = always/almost always). We averaged these four scores to

calculate *negative peer interactions*. The higher the score, the more negative peer interactions the student experienced.

At the family level, we controlled for *mother's education level* (continuous variable, from 1 = 8th grade or less to 7 = graduate or professional) and *family management*. For *family management*, participants used a four-point Likert scale (1 = strongly disagree, 4 = strongly agree) to answer the following questions: "(a) My parents ask if I have gotten my homework done; (b) My parents would know if I did not come home on time; (c) When I am not home, one of my parents knows where I am and who I am with; and (d) If I skipped school, my parents would catch me." We averaged these four scores, with a lower score indicating poorer *family management*.

At the school level, we controlled for *school safety* (1/0), and *low school commitment*. For *low school commitment*, participants answered by a five-point Likert scale the following questions: "(a) How interesting are most of your courses to you?" (1 = very interesting, 5 = not at all interesting); "(b) How important do you think the things you are learning in school are going to be for you later in life?" (1 = very important, 5 = not at all important); "(c) Now thinking back over the past year in school, how often did you feel that the school work you were assigned was meaningful and important?" (1 = almost always, 5 = never). *Low school commitment* was treated as a continuous variable by averaging the scores for the questions. A higher score indicated lower school commitment. At the community level, we controlled for *community safety* (1/0) and *community attachment*. For *community attachment*, participants answered the following questions using a four-point Likert scale (1 = strongly disagree, 4 = strongly agree): "(a) If I had to move, I would miss the neighborhood I now live in; (b) I like my neighborhood; (c) I'd like to get out of my neighborhood." It was treated as a continuous variable using the mean score of the three variables. The higher the score, the higher level of community attachment.

Analytic Strategy

First, descriptive statistics were run for all of the variables by the whole sample and each of the six ethnic groups. Then—while controlling for the demographic and socioeconomic factors at the individual, peer, family, school, and community levels—logistic

regressions were conducted for the whole sample and by the six ethnic subgroups to examine the relationship between school failure and school lunch participation. We also controlled the clustering effects (Primo et al., 2007) at school levels. All the analyses were conducted using Stata 15.0 for Windows.

Results

Descriptive Statistics

Table 1 shows the descriptive statistics for each variable for the entire youth sample (Column 1) and for each of the six ethnic subgroups (Columns 2–7). Overall, about 6% of participants reported a school failure in the last year. American Indian youth (11%) reported the highest school failure rate, followed by Black (9%), Latino (8%), mixed racial groups (6%), White (4%), and Asian/Pacific Islanders (4%). The percentage of free lunch participation for the total sample was 33%. The highest rate of free lunch participation was found among American Indian youth (70%), whereas the lowest was White participants (15%). The reduced price lunch participation rate for the total sample was 8%. The highest rate of reduced price lunch participation was Black participants (11%) and the lowest was White participants (6%). The nonparticipation in the NSLP for the total sample was 60%. White youth had the highest nonparticipation rates (79%) while American Indian students had the lowest rates of nonparticipants (23%).

Of the total sample, 47% were male and the average age was 15.54 ($SD = 1.71$) years old. The majority of youth were in tenth grade (35%) followed by eighth grade (34%) and twelfth grade (32%). Nearly half (48%) of the total sample were White youth, followed by Latino (37%), mixed racial (6%), Black (3%), American Indian (3%), and Asian/Pacific Islander (3%) youth. The mean ACE score across ethnic groups was 1.13 (out of 6). About 10% of youth had been suspended from school in the last year and 32% of youth had a friend who was suspended or dropped out of school in the last year. The average negative peer interaction score was 0.78 ($SD = 1.43$) and the mean score for family management was 2.13 ($SD = 0.71$). Their mothers' average education level was some college. Overall, 82% of youth felt safe at

school, whereas 80% of youth felt safe in their community. More details are provided in Table 1.

Relationship Between Free Lunch Participation and School Failure

The results of our analysis on free lunch participation and school failure are shown in Table 2. Overall, free lunch participation was a significant predictor of school failure. Column (1) in Table 2 shows that, in comparison to participants with free lunch, a statistically significant lower odds of school failure was associated with participants receiving reduced price lunch for students overall (OR = 0.78, $p < .05$). However, we did not find any significant differences in school failure between free lunch and reduced price lunch participants by all six ethnic subgroup samples. In comparison to participants with free lunch, a statistically significant lower odds of school failure was associated with nonparticipation for the total sample (by 36%; $p < .001$), as well as for the White (by 41%; $p < .001$), Latino (by 24%; $p < .01$), Black (by 48%; $p < .05$), and Mixed (by 70%; $p < .001$) subsamples.

For the covariates at the individual level of the total sample, other things being equal, Latino ($p < .001$), Black ($p < .01$), and American Indian ($p < .001$) students had significantly higher odds of school failure than White students (reference group). Being male was associated with higher odds of school failure for overall participants and some ethnic groups including White, Latino, and Mixed groups. Having a higher ACE score was also associated with higher odds of school failure for the total sample and some ethnic subgroups including White, Latino and Black subgroups. Higher odds of school failure were associated with participants having been suspended for the total sample and for all six ethnic subgroups.

For covariates at the peer level, other things being equal, a significantly higher odds of school failure was associated with participants having friends who had been suspended or dropped out of school for the total sample and for all ethnic subgroups besides Black. Significantly higher odds of school failure were also associated with a higher score of negative peer interactions for the total sample of youth and for some ethnic subgroups including White, Latino, and Black youth.

For covariates at the family level, other things being equal, every one unit increase in family management scores

Table 1. Sample Descriptions by Ethnic Groups

	(1)		(2)		(3)		(4)		(5)		(6)		(7)	
	Mean	SD	White	Latino	Black	AI	API	Mixed	Mean	SD	Mean	SD	Mean	SD
Dependent Variables														
School Failure	0.06	0.23	0.04	0.19	0.08	0.27	0.09	0.29	0.11	0.32	0.04	0.19	0.06	0.23
Independent Variables														
Welfare Participation														
Free Lunch	0.33	0.47	0.15	0.35	0.54	0.50	0.43	0.50	0.70	0.46	0.17	0.38	0.29	0.45
Reduced price lunch	0.08	0.27	0.06	0.24	0.10	0.29	0.11	0.32	0.07	0.26	0.08	0.28	0.08	0.27
Nonparticipation	0.60	0.49	0.79	0.41	0.37	0.48	0.46	0.50	0.23	0.42	0.74	0.44	0.63	0.48
<i>Individual level:</i>														
Male	0.47	0.50	0.47	0.50	0.46	0.50	0.54	0.50	0.46	0.50	0.49	0.50	0.47	0.50
Age	15.54	1.71	15.62	1.68	15.47	1.74	15.27	1.75	15.71	1.64	15.64	1.72	15.34	1.71
Education														
8th Grade	0.34	0.47	0.30	0.46	0.39	0.49	0.42	0.49	0.27	0.44	0.27	0.45	0.38	0.49
10th Grade	0.35	0.48	0.37	0.48	0.31	0.46	0.30	0.46	0.41	0.49	0.37	0.48	0.33	0.47
12th Grade	0.32	0.47	0.33	0.47	0.30	0.46	0.28	0.45	0.32	0.47	0.35	0.48	0.28	0.45
Ethnicity														
White	0.48	0.50	1	0	0	0	0	0	0	0	0	0	0	0
Latino	0.37	0.48	0	0	1	0	0	0	0	0	0	0	0	0
Black	0.03	0.17	0	0	0	0	1	0	0	0	0	0	0	0
American Indian (AI)	0.03	0.17	0	0	0	0	0	0	1	0	0	0	0	0
Asian/Pacific Islander(API)	0.03	0.17	0	0	0	0	0	0	0	0	1	0	0	0
Mixed	0.06	0.23	0	0	0	0	0	0	0	0	0	0	1	0
Total ACE Score	1.13	1.48	1.03	1.43	1.23	1.51	1.15	1.41	1.69	1.72	0.68	1.19	1.31	1.60
Participant Suspension	0.10	0.30	0.07	0.26	0.13	0.34	0.21	0.41	0.15	0.36	0.07	0.25	0.12	0.32

Table 1. Sample Descriptions by Ethnic Groups (continued)

	(1)		(2)		(3)		(4)		(5)		(6)		(7)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Total														
	Mean	SD	White		Latino		Black		AI		API		Mixed	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
<i>Peer level:</i>														
Peer Suspension/ Dropout	0.32	0.47	0.26	0.44	0.38	0.49	0.44	0.50	0.45	0.50	0.21	0.41	0.33	0.47
Negative Peer Interactions	0.78	1.43	0.75	1.38	0.79	1.48	0.92	1.59	0.77	1.43	0.71	1.36	0.90	1.50
<i>Family level:</i>														
Family Management	2.13	0.71	2.18	0.69	2.09	0.72	2.08	0.77	2.03	0.75	2.19	0.69	2.10	0.72
Mother's Education Level	4.30	1.83	4.85	1.67	3.52	1.76	4.54	1.79	3.91	1.59	4.82	1.95	4.62	1.70
<i>School level:</i>														
School Safety	0.82	0.39	0.84	0.37	0.81	0.40	0.75	0.43	0.79	0.41	0.84	0.37	0.78	0.41
Low School Commitment	3.01	0.91	2.92	0.89	3.10	0.91	3.04	0.93	3.33	0.88	3.19	0.94	2.92	0.91
<i>Community level:</i>														
Community Safety	0.80	0.40	0.85	0.35	0.74	0.44	0.75	0.43	0.69	0.46	0.86	0.34	0.79	0.41
Community Attachment	2.88	0.81	2.97	0.81	2.78	0.81	2.69	0.81	2.76	0.82	2.95	0.73	2.80	0.85
Observations	32,178		15,408		11,999		970		1,006		963		1,832	

Table 2 Results of Logistic Regression Analyses: School Failure

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Welfare Participation (ref. = free Lunch)							
Reduced price lunch							
Total	0.78*	0.72	0.81	0.73	1.06	0.95	0.61
	[0.646 - 0.952]	[0.500 - 1.047]	[0.620 - 1.055]	[0.293 - 1.801]	[0.502 - 2.248]	[0.216 - 4.193]	[0.289 - 1.309]
Nonparticipation							
Total	0.64***	0.59***	0.76**	0.52*	0.79	1.01	0.30***
	[0.553 - 0.747]	[0.472 - 0.746]	[0.624 - 0.918]	[0.301 - 0.890]	[0.438 - 1.409]	[0.324 - 3.175]	[0.191 - 0.485]
<i>Individual level:</i>							
Male							
Total	1.60***	1.77***	1.49***	1.69	1.36	1.66	1.72*
	[1.442 - 1.784]	[1.500 - 2.085]	[1.259 - 1.767]	[0.935 - 3.067]	[0.932 - 1.988]	[0.798 - 3.435]	[1.119 - 2.638]
Age							
Total	0.96	1.06	0.90	0.85	1.24	0.84	0.93
	[0.886 - 1.034]	[0.913 - 1.240]	[0.818 - 1.001]	[0.626 - 1.149]	[0.931 - 1.661]	[0.548 - 1.288]	[0.675 - 1.276]
Education (ref. = 8th grade)							
10th Grade	1.42***	1.06	1.63***	1.61	0.72	1.30	2.61*
	[1.172 - 1.731]	[0.734 - 1.536]	[1.274 - 2.094]	[0.676 - 3.846]	[0.334 - 1.530]	[0.456 - 3.711]	[1.082 - 6.270]
12th Grade	1.07	0.60	1.36	1.56	0.38	3.04	2.08
	[0.776 - 1.476]	[0.319 - 1.116]	[0.869 - 2.121]	[0.441 - 5.541]	[0.104 - 1.409]	[0.406 - 22.795]	[0.537 - 8.040]
Ethnicity (ref. = White)							
Latino	1.29***						
	[1.120 - 1.486]						
Black	1.55**						
	[1.164 - 2.063]						
American Indian (AI)	1.97***						
	[1.440 - 2.683]						
Asian Pacific Islander(API)	1.04						
	[0.717 - 1.499]						
Mixed	1.13						
	[0.893 - 1.419]						
Total ACE Score	1.12***	1.13***	1.09***	1.28**	1.10	1.00	1.13
	[1.084 - 1.156]	[1.081 - 1.190]	[1.045 - 1.142]	[1.096 - 1.490]	[0.974 - 1.237]	[0.789 - 1.273]	[0.989 - 1.300]

Table 2 Results of Logistic Regression Analyses: School Failure (continued)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Total	White	Latino	Black	AI	API	Mixed
Participant Suspension	2.58*** [2.281 - 2.926]	2.96*** [2.346 - 3.742]	2.38*** [1.988 - 2.850]	1.93* [1.150 - 3.236]	1.83* [1.133 - 2.962]	3.96* [1.305 - 12.037]	4.31*** [2.571 - 7.238]
<i>Peer level:</i>							
Peer Suspension/ Dropout	1.56*** [1.396 - 1.746]	1.33** [1.096 - 1.611]	1.69*** [1.450 - 1.972]	1.49 [0.829 - 2.663]	1.67** [1.163 - 2.409]	3.78*** [1.729 - 8.284]	1.12 [0.675 - 1.858]
Negative Peer Interactions	1.08*** [1.048 - 1.120]	1.11*** [1.055 - 1.168]	1.26*** [1.010 - 1.104]	0.80 [1.098 - 1.441]			
<i>Family level:</i>							
Family Management	0.81*** [0.760 - 0.863]	0.82*** [0.734 - 0.915]	0.81*** [0.740 - 0.897]	0.70* [0.507 - 0.955]	0.62** [0.460 - 0.838]	1.03 [0.659 - 1.610]	0.98 [0.718 - 1.343]
Mother's Educational Level	0.85*** [0.824 - 0.883]	0.84*** [0.797 - 0.887]	0.85*** [0.808 - 0.891]	0.88* [0.779 - 0.988]	0.90 [0.787 - 1.020]	0.98 [0.811 - 1.182]	0.89 [0.784 - 1.015]
<i>School level:</i>							
School Safety	0.76*** [0.674 - 0.860]	0.77** [0.636 - 0.938]	0.73*** [0.612 - 0.864]	0.93 [0.556 - 1.544]	1.04 [0.689 - 1.568]	0.92 [0.402 - 2.105]	0.68 [0.435 - 1.067]
Low School Commitment	0.71*** [0.663 - 0.752]	0.63*** [0.562 - 0.696]	0.77*** [0.697 - 0.845]	0.75* [0.572 - 0.976]	0.69** [0.535 - 0.893]	0.57 [0.309 - 1.063]	0.66** [0.519 - 0.847]
<i>Community level:</i>							
Community Safety	0.82** [0.720 - 0.935]	0.64*** [0.523 - 0.790]	0.93 [0.781 - 1.116]	0.52* [0.284 - 0.935]	1.41 [0.861 - 2.306]	0.66 [0.206 - 2.140]	0.78 [0.482 - 1.271]
Community Attachment	0.97 [0.903 - 1.045]	0.94 [0.841 - 1.058]	0.99 [0.885 - 1.100]	1.66** [1.204 - 2.303]	0.91 [0.667 - 1.237]	0.71 [0.343 - 1.486]	0.96 [0.747 - 1.237]
Constant	0.56 [0.177 - 1.756]	0.26 [0.028 - 2.358]	1.15 [0.265 - 4.961]	1.10 [0.015 - 82]	0.04 [0.001 - 2.378]	2.56 [0.003 - 2.501]	0.67 [0.008 - 59.088]
Observations	32,178	15,408	11,999	970	1,006	963	1,832

Notes: Robust 95% confident intervals were in brackets; *** p<0.001, ** p<0.01, * p<0.05

significantly decreases the odds of school failure for the total sample (by 19%, $p < .001$), and for White (by 18%, $p < .001$), Latino (by 19%, $p < .001$), Black (by 30%, $p < .05$) and American Indian (by 38%, $p < .01$) ethnic subgroups. Every one level increase in mothers' education significantly decreases the odds of youth school failure for the total sample and for some ethnic subgroups including White, Latino and Black groups.

For covariates at the school and community levels, other things being equal, every one unit increase in school commitment scores significantly decreases the odds of school failure for the total sample and for all ethnic subgroups but Asian/Pacific Islander. Results also show that feeling safe at school was significantly associated with lower odds of school failure for the total sample, and the White and Latino ethnic subgroups. For covariates at the community level, feeling safe in the community was significantly associated with lower odds of school failure for the total sample and for the White and Black subgroups. More details are provided in Table 2.

Discussion

This study examined the relationship between NSLP participation and school failure of youth from Arizona. We found that youth who did not participate in the NSLP lunch or received reduced price lunch reported significantly lower odds of school failure than students who received free lunch at school. Overall, this finding is consistent with other studies, which found that students who received free lunch experienced higher levels of school failure (Anderson et al., 1992). Other studies have also found lower academic achievement scores for students from minority ethnic groups receiving free lunch (Colgren & Sappington, 2015; National Center for Educational Statistics, 2011; Williams, 2003). The current study contributes to the literature by further exploring the variations of the relationships between welfare participation and school failure across six ethnic groups (i.e., White, Latino, Black, American Indian, Asian/Pacific Islander, and Mixed). We found a statistically significant difference in school failure between free lunch participants and nonparticipants for the total youth sample and for the White, Latino, Black and Mixed ethnic subsamples. We also found a statistically significant difference in school failure between free

lunch participants and reduced price lunch participants for the total sample, but not for any of the six ethnic subsamples.

This study also found that a participant being suspended from school or having a friend who was suspended or dropped out of school were significant risk factors for school failure for most of the ethnic groups. This is consistent with studies that found having a friend dropout of school increases the likelihood of a student dropping out (Carbonaro, 1998; Mora & Oreopoulos, 2011). A qualitative study of students at high-risk for dropping out found that peer relationships could push students to also drop out or stay in school (McIntyre, 2013). Male students were more likely to fail courses than female students. Most studies have found that males drop out of school at higher rates than females, but several studies have found that the rates may vary by ethnic group (Crowder & South, 2003; Rumberger & Lim, 2008).

In addition, this study found family management and school commitment were significant protective factors across most ethnic groups. Better family management was correlated with a reduction in school failure. This finding is consistent with other studies that have found family management to be a protective factor of child school engagement (Bartle-Haring et al., 2012). The findings from this study suggests that knowing with whom and where children are spending their time, setting clear rules, and checking on homework completion are associated with better educational outcomes for youth. Studies have also found that higher levels of school commitment or engagement have been associated with higher academic achievement (Bryan et al., 2012; Sciarra & Seirup, 2008).

Implications for Social Work Practice

The study highlights the need for both school-wide prevention programs and selective interventions that are culturally responsive. School-wide prevention programs can help to improve educational outcomes for all students. For example, school-based health centers and wraparound services have shown some promising links between academic outcomes, including dropout rate, adolescent health, family environment, and psychological well-being (Walker et al., 2010). School-based health centers (SBHCs) provide access to health and mental health services to

youth who are traditionally underserved within community health settings (Brown & Bolen, 2003; Walker et al., 2010). These centers have been found to increase GPA and attendance and reduce high school dropout rates (Walker et al., 2010). Multidisciplinary teams coordinate wraparound services for youth and families related to health, mental health, education, safety, and welfare (Suter & Bruns, 2009). When compared with youth not receiving services, adolescents receiving wraparound services had better mental health and school functioning outcomes as well as more stable living environments (Suter & Bruns, 2009). These programs can improve access to health and mental health services through school systems, which are important sources to access care for adolescents (Keeton et al., 2012).

Additionally, community school models, such as The Harlem Children's Zone, integrate community services into schools to service student, family, and community needs (Dryfoos, 1994; Stone, 2015). These models have been gaining increased interest in recent years, though approaches between schools and districts vary widely and it is unclear what role social workers play in these models (Stone, 2015). The community school model promotes student involvement in service learning and volunteer opportunities to encourage community engagement, improvement, and development (Stone, 2015). This model also identifies the importance of social services, health and mental health services, and community development on academic outcomes among adolescents. For schools and districts with a high percentage of youth on free and reduced lunch, funding for social programs that provide social services, health and mental access, and family/community intervention strategies are needed to obtain positive academic outcomes and lower dropout rates.

In addition to school-wide prevention programs, schools can use selective interventions to target students who have identified risk factors for dropping out. This study suggests that participants across ethnic groups who had been suspended at least one time had a higher likelihood of school failure. Additionally, peer suspension or dropout was associated with school failure for most ethnic groups. This suggests that dropout intervention programs in schools could target students who have been suspended or had a friend who was suspended or dropped out. Further, higher family management scores were associated with

lower odds of school failure for all ethnic subgroups but Asian/Pacific Islander and Mixed. Aspects of interventions for family management could include teaching families how to check on homework and academic progress, ensure youth are attending school, talk to youth about with whom they are spending time, and monitor where they are spending their time. This finding suggests that intervention programs aimed at improving positive family management skills could help to improve educational outcomes. However, the finding was not statistically significant for Asian/Pacific Islander and Mixed youth. Family management interventions may need to be culturally responsive for families of Asian/Pacific Islander and Mixed youth or focus on other protective factors that are significant for those populations.

Limitations and Strengths

The current study has some limitations. One limitation of the study was that it did not use a probability sample. All schools in the state of Arizona were eligible to participate, and schools in all 15 counties in Arizona participated. However, participation by the schools was optional and the study did not utilize random selection. Another limitation is that the study did not address missing data given the non-probability sampling method. A third limitation is that the sample was not a national sample but was limited to one state. Given the sample was limited to Arizona, caution is needed when generalizing results to other areas.

Nevertheless, this study has several strengths. While not nationally representative, this study had a large sample size of youth across a diverse state. The sample included rural, urban, and suburban areas from multiple racial groups. This study utilized a multi-racial group comparison, which provided more precise predictors of positive educational outcomes for different ethnic groups. Thus, this study can support researchers and practitioners in developing school-wide prevention and culturally responsive interventions to improve educational outcomes. Multiple control variables at the individual, peer, school, family, and community levels were utilized, which can help to yield better understanding of the risk and protective factors from different levels.

Conclusion

Our findings highlight the need for more educational interventions for youth with low-socioeconomic status. Across ethnic groups, participant suspension and peer suspension/dropout were strong risk factors for school failure for students who received free lunch. Early interventions to target course failure and suspension could help to improve school performance. Additionally, interventions to support positive family management and higher school commitment could be protective factors to improve school performance. Future research could examine the effect of positive family management on school failure for students from a low-SES. Findings from this study highlight risk and protective factors affecting school performance for low-SES students across ethnic groups.

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