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Research Article:

Exploring Teacher Leadership's Effect on Teacher Burnout: Does School Rurality Make a Difference?

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ABSTRACT

In literature, both teacher leadership and teacher burnout have been heavily studied. However, it is unknown to what extent teacher leadership makes a difference in teacher burnout, and whether school rurality makes a difference in between. This study fills the research gaps by conceptualising teacher leadership from both instructional and non-instructional dimensions and applying a quantitative method to large-scale national data. Findings revealed that (a) rural teachers presented higher levels of teacher leadership practices; (b) rural and non-rural teachers presented the same levels of burnout; and (c) both instructional and non-instructional dimensions of teacher leadership practices helped reduce teacher burnout in general, but rurality moderated the two effects differently, where instructional teacher leadership had a larger effect in non-rural schools while non-instructional teacher leadership presented a larger effect in rural schools. Discussion and recommendations for further research of teacher leadership and teacher burnout in rural schools are presented.

Keywords: Teacher leadership, instructional teacher leadership, non-instructional teacher leadership, teacher burnout, rural schools

Received: 20 October 2023; **Published:** 29 December 2023

To cite this article: Xia, J., & Butler, S. J. (2023). Exploring teacher leadership's effect on teacher burnout: Does school rurality make a difference? *Asia Pacific Journal of Educators and Education*, 38(2), 107–129. <https://doi.org/10.21315/apjee2023.38.2.7>

INTRODUCTION

During the past four decades, both teacher leadership (TL) and teacher burnout (TB) have obtained the attention of researchers and practitioners. Due to the popularity of the topics, the research literature on both TL and TB has been rich and increasingly growing. On one hand, researchers have conducted important and influential reviews, syntheses, or meta-analyses of theoretical and empirical studies on TL between 1980 and 2023. On the other hand, the studies on burnout in general and TB in specific, started even earlier than TL and have gone through different phases including early pioneer phase of conceptual development and later empirical phase of systematic research and assessment (Maslach & Schaufeli, 2018).

The two groups of research, however, rarely bridged from one to the other. And two questions are still uncertain. The first is to what extent TL is associated with TB, as Smylie (1999) pointed out that TL initiatives could be stress-inducing and stress-reducing as well. The evidence in the literature is thin and mixed. For example, York-Barr and Duke (2004) conducted the seminal review of 100 studies or reviews of studies published between 1980–2003. They examined seven questions about TL, including TL's effects. They found that TL could have effects on teacher leaders, colleagues and students. The effects on teacher leaders are not all positive – they could improve motivation, reduce isolation, but also create role confusion and cause stress. York-Barr and Duke (2004) noted that the majority of the studies are small-scale and qualitative. Therefore, it is unknown to what extent TL influences TB. Wenner and Campbell (2017) picked up where York-Barr and Duke (2004) stopped and reviewed 72 pieces of literature published between 2004 and 2013. They examined TL's impact, and factors that facilitate or inhibit teacher leaders' work, among others. They found that TL's effects on teacher leaders fall into four categories: stress; relationships with peers and administration; professional growth; and leadership capacity. However, the review did not attend to the effect size.

The second unknown question is, if TL is associated with TB, does school rurality make a difference? York-Barr and Duke's (2004) review found three categories of conditions that influence TL: school culture, roles and relationships and structures. But the school rurality was not mentioned. Wenner and Campbell's (2017) review examined school context's effect on TL, and they found that principals, school structures, and norms are important factors that empower or marginalise TL in schools. However, on school context, the school location or rurality was not examined. Therefore, further research on whether school rurality makes a difference in TL and its effect on TB is needed (Lotter et al., 2019). To fill the void, this study seeks evidence from the most recent 2020–2021 National Teacher and Principal Survey (NTPS) teacher data. Three research questions guide this study:

1. To what extent are TL practices positively or negatively associated with TB?
2. To what extent does school rurality make a difference in TL practices and TB in US public schools?
3. To what extent does school rurality moderate the associations between TL practices and TB?

The following sections present a review of the literature on TL, TB, school rurality and TL's effect on TB; introduce a conceptual framework; then research methodology and findings; and finally discussions and conclusions at the end.

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

Teacher Leadership: Four Waves of Evolvement

The concepts and practice of TL have evolved over the last four decades. Silva et al. (2000) summarised the first 20 years with three waves of TL: (a) formal roles, (b) instructional expertise, and (c) re-culturing based on collaboration. The first wave focused on formal roles such as department head and master teacher. These roles focused more on managerial tasks than instructional leadership.

The second wave emphasised teachers' instructional expertise and thus teachers exercised leadership roles as team leaders or curriculum developers. Teacher leaders in the second wave still hold the formalised positions and thus, represent a control model where school leaders control teachers and implement curriculum and instructions through teacher leaders and the created teaching packages.

The third wave differs from the last two in that it highlights TL as a school re-culturing and improvement process rather than formalised roles. Pounder (2006) found this process-based conceptualisation difficult to articulate due to an array of behaviours and characteristics. Wasley (1991) defined the third wave of TL as teachers who "help redesign schools, mentor their colleagues, engage in problem solving at the school level, and provide professional growth activities for colleagues" (p. 56). Berry and Ginsberg (1990) identified three components of the role of "lead teachers":

1. Mentoring and coaching other teachers.
2. Professional development and review of school practice.
3. School-level decision making.

Researchers have also advocated for a fourth wave of TL. Berry et al. (2013) advocated for a 4th wave of TL in which teacher leaders have time and space to lead beyond their district, state, and nation. Holland et al. (2014) argued that teacher leaders in the 4th wave could bridge the policy-practice gap through leading policy making at local, state, and even federal levels. Holland et al. (2014) believe this could transform TL and the teaching profession from reactive to proactive.

Although the concept has evolved, the definitions of TL are still inconsistent (Wenner & Campbell, 2017; English, 2006). Harris and Jones (2019) summarised this inconsistency as researchers asking the following questions. Does TL equate to influence or formal responsibility? Does TL necessarily require teachers to go beyond their formally assigned role? Or is TL simply a development of pedagogical excellence? Bae et al. (2016) categorise teacher leaders as instructional innovators, professional learning leaders and administrative teacher leaders. The inconsistency suggests that further studies are needed.

Teacher Burnout

Burnout has been recognised as an occupational phenomenon by the World Health Organization (WHO) as resulting from chronic workplace stress (WHO, 2019). Maslach and Leiter (2016) defined burnout as “a psychological syndrome emerging as a prolonged response to chronic interpersonal stressors on the job” (p. 103). Maslach and Jackson (1981) developed the Maslach Burnout Inventory (MBI) that measured burnout from three dimensions – emotional exhaustion, depersonalisation, and lack of accomplishment. In 1991, Friedman adapted the MBI instrument to TB by retaining the three-factor structure with reduced and reworded items to make it applicable to teachers. Schaufeli and Salanova (2007) argued that the central elements of burnout include just two dimensions: emotional exhaustion and depersonalisation. Following Schaufeli and Salanova (2007), Skaalvik and Skaalvik (2010) adapted the MBI instrument and measured TB from two dimensions of emotional exhaustion and depersonalisation.

Among the two dimensions, emotional exhaustion is considered as the core element of burnout (Maslach et al., 1996) and the increased feeling of emotional exhaustion is a key aspect of the burnout syndrome (Maslach & Jackson, 1981, p. 101). Maslach et al. (2001) noted that when people describe experiencing burnout, they most often refer to the feeling of exhaustion. Evers et al. (2004) referred to emotional exhaustion as “feelings of being emotionally overextended and having depleted one’s emotional resources” (p. 132). Schwarzer et al. (2000) described the characteristics of emotional exhaustion as feeling fatigue, debilitation, loss of energy, and wearing out.

The other dimension, depersonalisation, describes “an unfeeling and impersonal response towards recipients of one’s care or service” (Maslach & Jackson, 1981). It is “a negative, callous and detached attitude towards the people one works with, i.e., patients, clients or students” (Evers et al., 2004, p. 132). In TB, depersonalisation refers to “negative, cynical attitudes and feelings about one’s students or colleagues” (Skaalvik & Skaalvik, 2010, p. 1060).

The factors affecting TB could include classroom management (Brouwers & Tomic, 2000), perceived lack of school safety (Shackleton et al., 2019), lack of support (Brouwers et al., 2006), and lack of job control (Brouwers et al., 2011), among many other factors. Though factors contributing to TB are numerous and wide-ranging, the results of TB are a teacher workforce with reduced wellbeing and increased teacher turnover. Burnout plays a larger role than job satisfaction in teachers’ intention to leave the profession (Madigan & Kim, 2021). These impacts will ultimately affect students (Granziera et al., 2023).

Associations between TL and TB

In the literature, there are two different kinds of perspectives on the relationship between TL and burnout. On one hand, researchers mentioned that TL might cause burnout. Smylie (1999) discussed two sources of teacher stress: (a) standards and assessments, and (b) TL development. Smylie (1999) analysed why TL development is associated with stress. He highlighted role conflict as a significant issue. For example, there might be tensions

between teachers' role as classroom instructors working with students and their roles as teacher leaders working with other teachers and school administrators. Smylie (1999) also mentioned other issues with TL that might cause burnout, which include role ambiguity, loss of autonomy, work overload and relationships with other teachers and administrators. On the other hand, researchers found that TL could have a positive effect on teacher job satisfaction, among others. Smylie (1999) believed that TL related initiatives could be stress-inducing and stress-reducing as well. Smylie did list positive outcomes of TL including learning and motivation.

Researchers believed that TL overlaps with distributed leadership (DL) (Harris, 2003). Many studies examined DL's effect on teacher job satisfaction or self-efficacy. Though an increase in job satisfaction does not necessarily mean a decrease in feelings of burnout, job satisfaction and burnout indicators are linked (Madigan & Kim, 2021). Sun and Xia (2018) found that teacher perceived DL is positively associated with teacher job satisfaction and teacher self-efficacy at both the teacher and school level. Additionally, Liu et al. (2021) found that both DL and instructional leadership are positively associated with teacher job satisfaction and teacher self-efficacy. DL practices have been shown to decrease feelings of burnout for Chilean elementary teachers (Lopez-Alfaro et al., 2022).

Teacher autonomy is also closely related to TL (Kara & Bozkurt, 2022). Researchers have examined the relationship between teacher autonomy and measures of TB including emotional exhaustion, depersonalisation and personal accomplishment. For example, Skaalvik and Skaalvik (2009; 2011) found that teacher autonomy is negatively associated with emotional exhaustion and depersonalisation but positively associated with personal accomplishment.

Van Droogenbroeck et al. (2014) examined burnout among senior teachers. They found that higher levels of teacher autonomy are directly associated with lower levels of one TB measure depersonalisation and indirectly associated with lower levels of the other TB measure emotional exhaustion. Here the indirect associations were mediated by the two types of workloads. Van Droogenbroeck et al. (2014) believed that teachers with more autonomy have more chances to regulate the policies and thus to reduce their teaching-related and non-teaching-related workload.

Challenges Associated with Rural Schools

The United States schools are facing a teacher shortage crisis, but researchers seem to focus their efforts on urban schools despite the vacancy rates for rural and non-rural schools being the same after accounting for size (Player, 2015). Rural American schools face many challenges, from shrinking populations (Cromartie, 2020), to smaller salaries (Frahm & Cianca, 2021), and innumerable concerns, unique to each community (DeMatthews et al., 2023; Hansen, 2018).

However, rural contexts are explored far less than non-rural districts (Player, 2015). Arnold et al. (2005) reviewed 288 rural education studies and found only four discussed rural teacher stress or burnout in a substantive way; this, despite burnout and work-related

stress being studied extensively for 20 years prior. Australian school leaders noted higher levels of stress as the distance of their school from urban areas increased (Drummond & Halsey, 2013). Rural teachers revealed that factors out of their control (social and political) were far more prevalent stressors than personal factors (Randell, 2019), but compared to non-rural teachers, rural teachers were found to spend nearly an hour less each week (on average) communicating with colleagues (Woodland & Mazur, 2019). A study on Fijian schools found rurality affects cooperation in addition to the professional exchange of ideas with rural teachers having little time during or after school to dialogue (Chand & Mohan, 2019). This, in turn, affects teachers' professional growth and professional identity which together can increase teachers' feelings of burnout (Xu et al., 2023).

Finally, leadership in rural schools looks different than in non-rural schools (Hardwick-Franco, 2019). By virtue of size and scaling, rural districts have fewer schools and thus fewer principals. For example, the percentage of all schools that are considered combined (a combination of primary, middle, or high school in one building) in rural communities during the 2020–2021 school year was 18.5% of all rural schools while for non-rural schools, the percentage of combined schools was only 6.3% (National Center for Education Statistics [NCES], 2023). Combined schools do not require as many administrators as separate schools and may necessitate additional leadership from teachers.

Research comparing rural to non-rural or rural to urban TL, let alone the associations between rurality, TL, and TB, is sparse. Much of what little research exists, specific to rural, non-rural, or urban TL has focused on the second wave of TL research, instructional leadership, both in the United States (Lotter et al., 2019; Beachum et al., 2010) and internationally (Wang et al., 2022; Liu, 2021). Researchers often reveal an urban-centric view, that urban life is the norm with rural communities representing isolation and remoteness (Kramer & Jahnke, 2019) which may contribute to the lack of leadership and burnout research on rural schools themselves and on their comparison to non-rural schools.

Conceptual Framework

This study focuses on whether TL is associated with TB and whether school rurality makes a difference in TL practices, TB and the relationship between TL and TB. TL practices, TB, and School rurality are the three focused concepts. In this study, TL is defined as teachers' actual influence on school level policies and decisions. Our definition is more operational since this study relies on secondary data of the 2020–2021 NTPS to measure teacher leadership. Based on the 2020–2021 NTPS teacher questionnaire, the school policies teachers could influence include:

1. setting performance standards for students at this school;
2. establishing curriculum;
3. determining the content of in-service professional development programmes;
4. evaluating teachers;
5. hiring new full-time teachers;
6. setting discipline policy; and
7. deciding how the school budget will be spent.

This definition is aligned with the third wave of teacher leadership in that teachers engage in problem solving at the school level (Wasley, 1991) and participate in school level decision making (Berry & Ginsberg, 1990). Our definition also aligns with the fourth wave in that it emphasises teachers' influence on school level policies and policies established above school level. Among the seven school policies included in the survey, some policies like curriculum and standards are usually made at district or state level. By examining teachers' influence on these policies, there is an opportunity to understand to what extent teachers are able to bridge the policy-practice gap and make changes to the teaching profession.

In this study, two survey items are used to measure TB:

1. I do not seem to have as much enthusiasm now as I did when I began teaching.
2. I think about staying home from school because I am just too tired to go.

These two items align with the emotional exhaustion dimension of TB. The survey does not have items to measure the other dimensions of burnout, namely depersonalisation and personal accomplishment. Although only one single dimension of TB is available in the NTPS data, it is the core element of burnout (Maslach & Jackson, 1981).

Based on the literature and the three key concepts, a conceptual framework is developed and presented in Figure 1. The literature suggested that both the lack of autonomy (Skaalvik & Skaalvik, 2014) and decreased self-efficacy (Skaalvik & Skaalvik, 2010; Shoji et al., 2016) contribute to TB, indicating that distributing leadership to teachers could affect their feelings of burnout. Therefore, the authors hypothesised that higher levels of TL are associated with lower levels of TB. Also, increasing research suggests place matters in educational research (Roberts & Fuqua, 2021) and thus they further hypothesised that school rurality makes a difference in TL, TB, and the relationship between TL and TB.

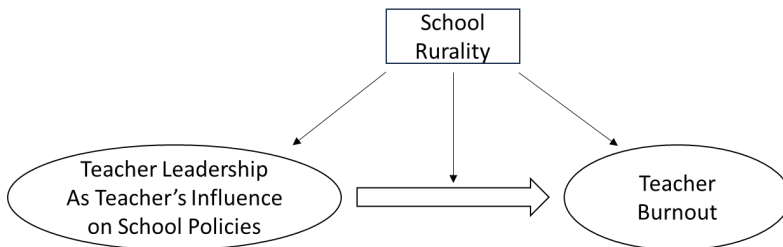


Figure 1. Conceptual framework

METHOD

Researcher Positionality

The authors are a faculty member and a doctoral student of educational administration in a Mid-West University in the United States. They both were teachers in secondary schools. One researcher teaches quantitative research methods and advises doctoral students. One of

his research interests is about rural school principals’ and teachers’ leadership development, wellbeing, and retention. The other researcher was a teacher and administrative intern during the COVID-19 pandemic in a suburban high school and is now working with rural school districts (administration and teachers directly) in an advisory and support role. The researchers chose to study this topic due to their interest in the effect leadership can have on an organisation, particularly when teacher-leaders are provided opportunities to lead and because they have seen firsthand, in the schools and districts they work with, the struggles and resiliency of rural educators.

Data Source and Sample

This study utilised data from the 2020–2021 National Teacher Principal Survey (NTPS). NTPS is collected by the National Centre for Educational Statistics (NCES). This study included a sample of about 39,630 public school teachers with about 8,900 from rural schools and 30,730 are from non-rural schools. The same sample includes about 9,850 male teachers and 29,780 female teachers; and about 7,500 are minority teachers while about 31,130 are White and non-Hispanic. The sample sizes are presented in Table 1.

Table 1. Sample sizes ($N = 39,630$)

Demographic		Frequency	Percent
Gender	Male	9,850	24.86
	Female	29,780	75.14
Ethnicity	White, non-Hispanic	32,130	81.07
	Minority	7,500	18.93
Rural	Rural	8,900	22.46
	Non-rural	30,730	77.54

Note: All counts have been rounded to the nearest 10 per IES rules.

Measures and Variables

In this study, the three focused constructs are latent and they were developed using the confirmatory factor analysis (CFA). TL practices are measured by seven variables responding to the prompt, “How much actual influence do you think teachers have over school policy AT THIS SCHOOL in each of the following areas?” (National Teacher and Principal Survey [NTPS], 2023, p. 28). The seven areas are as follows: (a) setting performance standards for students at this school; (b) establishing curriculum; (c) determining the content of teacher professional development; (d) evaluating teachers; (e) hiring teachers; (f) setting discipline policy; and (g) deciding school budget. Based on the literature and the wording of the seven items, two latent constructs are conceptualised and operationalised: ITL, representing instructional TL, is based on the first two items and NITL, representing non-instructional TL, is based on the last five items. The response options are; no influence, minor influence, moderate influence, and a great deal of influence with larger values indicate higher levels of influence.

To measure TB, two items are used from teachers’ response to the prompt, “To what extent do you agree or disagree with each of the following statements?” (NTPS, 2023, p. 30). The two statements are:

1. I do not seem to have as much enthusiasm now as I did when I began teaching.
2. I think about staying home from school because I am just too tired to go

The NTPS categorises school locations as urban, suburban, town and rural. The first three categories are combined as "non-rural". This study also included four demographic variables, including teacher gender, race ethnicity, degree, and teaching experience. All variables’ descriptive statistics are presented in Appendix.

Analytical Procedures

Two major steps were taken to analyse the data. The authors first applied the confirmatory factor analysis (CFA) to develop the three latent variables ITL, NITL and TB. They then applied the structural equation model (SEM) to analyse the relationship between variables. To answer question 1, the authors applied the SEM analysis to the whole sample. For questions 2 and 3, they applied multiple group CFA and multiple group SEM. The multiple group analysis allows us to compare the findings between rural and non-rural schools. All analyses are conducted at the teacher level with individual teacher as the unit of analysis. At the same time, the analysis included replicate weights so that it takes the multilevel data structure into account and derives accurate standard errors.

FINDINGS

Latent Construct Development

Since a CFA model requires three or more items, the authors combined three latent constructs in one single CFA analysis. The model fit indices are presented in Table 2. Both CFI and TLI are larger than 0.95 and both SRMR and RMSEA are smaller than 0.06, indicating the overall CFA model has a good fit.

Table 2. Model fit indices

Model	N of parameters	χ^2	df	CFI	TLI	SRMR	RMSEA 90%CI
3-factor CFA	30	1642.991	24	0.977	0.966	0.022	0.041 [0.040, 0.043]
Whole-sample SEM	45	4009.313	54	0.949	0.924	0.027	0.043 [0.042, 0.044]
2-group CFA	48	1850.164	60	0.975	0.970	0.023	0.039 [0.037, 0.040]

Notes: CFA = confirmatory factor analysis, SEM = structural equation model

Based on the well-developed latent constructs, the authors further examined the correlations between all the variables. The results are presented in Table 3. The correlations provided us a hint on possible structural associations. For example, the correlation coefficients between TB and NITL and ITL are -0.327 and -0.344 , indicating higher levels of NITL and ITL

are associated with lower levels of TB. Likely, the correlation coefficient between TB and Rural (0 = non-rural, 1 = rural) is -0.006 , indicating that rural teachers' burnout is not practically higher or lower than non-rural teachers. The correlation coefficients between NITL and ITL and school rurality are 0.034 and 0.082 , indicating rural teachers presented higher levels of NITL and ITL.

Table 3. Correlations between variables

	NITL	ITL	RURAL	GENDER	RACEETH	EXPERIENCE	DEGREE
TB	-0.327	-0.344	-0.006	0.123	0.011	-0.033	-0.010
NITL		0.770	0.034	-0.046	-0.036	-9.058	-0.028
ITL			0.082	-0.081	-0.001*	0.006	-0.007

Notes: TB = teacher burnout; ITL = instructional leadership; NITL = non-instructional leadership. * $p > 0.05$. All other correlation coefficients' $p < 0.001$.

Findings of Research Question 1

By applying an SEM model to the whole sample of public-school teachers, this study further analysed the structural effects of NITL and ITL on TB. The model fit indices are presented in Table 2. CFI is 0.949 , TLI is 0.924 , and both SRMR and RMSEA are smaller than 0.06 , indicating the overall CFA model has a good fit. The results are presented in the “All Public Schools” columns in Table 4. The results showed that after taking all other variables into account, school rurality has a positive effect on NITL ($\beta = 0.034$, 95% CI [0.033, 0.035]), a positive effect on ITL ($\beta = 0.088$, 95% CI [0.087, 0.089]), and a positive effect on TB ($\beta = 0.019$, 95% CI [0.018, 0.02]). The first two positive effects tell us that even after controlling for all other factors, rural teachers still presented higher levels of TL practices. The third positive effect tells us that after controlling for all other factors, rural teachers presented higher levels of TB than non-rural teachers.

The results also showed that the two TL practices have a negative effect on TB: ITL ($\beta = -0.198$, 95% CI [-0.200, -0.196]), and NITL ($\beta = -0.222$, 95% CI [-0.224, -0.22]). This means that higher levels of TL practices are associated with lower levels of TB. This is very promising for all public schools, since it implies that having teachers involved in both leadership practices is helpful to reduce TB. Our next model identifies the extent to which school rurality affects these positive effects on TB.

Among all the control variables, teacher gender and experience are the two that showed impressive effects on TB. Their effects are only smaller than the two TL practices', but larger than school rurality. The effect of gender ($\beta = 0.096$, 95% CI [0.095, 0.097]) showed that female teachers had higher levels of TB than male teachers. The effect of experience ($\beta = -0.048$, 95% CI [-0.050, -0.045]) showed that more experienced teachers had lower levels of TB; with the increase of every one year of teaching experience, TB is reduced by about 0.5 standard deviation in TB.

Table 4. Standardised results of the full SEM Models for the whole sample and the two subsamples

	All public schools		Non-rural schools		Rural schools	
	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI
TB						
ITL	-0.198	[-0.200, -0.196]	-0.203	[-0.205, -0.201]	-0.184	[-0.187, -0.181]
NITL	-0.222	[-0.224, -0.220]	-0.209	[-0.211, -0.207]	-0.264	[-0.267, -0.262]
Rural	0.019	[0.018, 0.02]				
Gender	0.096	[0.095, 0.097]	0.094	[0.093, 0.095]	0.101	[0.099, 0.103]
Race/ Ethnicity	0.006	[0.005, 0.007]	0.003	[0.001, 0.004]	0.025	[0.009, 0.041]
Experience	-0.048	[-0.05, -0.045]	-0.058	[-0.060, -0.056]	-0.012	[-0.015, -0.009]
Degree	-0.016	[-0.017, -0.015]	-0.027	[-0.029, -0.026]	0.025	[0.023, 0.027]
ITL						
Rural	0.088	[0.087, 0.089]				
Gender	-0.098	[-0.099, -0.097]	-0.099	[-0.100, -0.098]	-0.093	[-0.095, -0.090]
Race/ Ethnicity	0.016	[0.015, 0.018]	0.012	[0.011, 0.014]	0.036	[0.012, 0.060]
Experience	-0.001	[-0.002, 0]	-0.012	[-0.013, -0.011]	0.038	[0.034, 0.042]
Degree	-0.001	[-0.002, 0]	0.009	[0.008, 0.010]	-0.037	[-0.040, -0.035]
NITL						
Rural	0.034	[0.033, 0.035]				
Gender	-0.046	[-0.047, -0.045]	-0.044	[-0.045, -0.043]	-0.053	[-0.056, -0.051]
Race/ Ethnicity	-0.035	[-0.036, -0.034]	-0.040	[-0.042, -0.039]	-0.010	[-0.017, -0.003]
Experience	-0.060	[-0.061, -0.058]	-0.068	[-0.069, -0.067]	-0.030	[-0.033, -0.027]
Degree	-0.027	[-0.028, -0.026]	-0.020	[-0.021, -0.019]	-0.054	[-0.057, -0.051]

Notes: TB = teacher burnout; ITL = instructional leadership; NITL = non-instructional leadership

Findings of Research Question 2

In order to understand whether school rurality makes a difference in TB and the two TL practices (ITL and NITL), the authors conducted a two-group CFA analysis to compare the latent means of the three constructs. In Mplus, the default in multiple group CFA is that the factor means are fixed to zero in the first group and are free to be estimated in the other groups (Muthén & Muthén, 1998–2017). This feature allows us to compare the latent means between the two groups. The model fit indices are presented in Table 5. Both CFI and TLI are larger than 0.95 and both SRMR and RMSEA are smaller than 0.06, indicating the overall CFA model has a good fit. The results are presented in Table 5. The results showed that rural teachers presented higher levels of NITL ($\beta = 0.076$, 95% CI [0.073, 0.078]) and higher levels of ITL ($\beta = 0.201$, 95% CI [0.198, 0.204]) as well, but their TB level was not practically different from non-rural teachers ($\beta = -0.005$, 95% CI [-0.008, -0.003]). These results are consistent with what the above correlationanalyses indicated.

Table 5. Standardised results of model for latent means comparison

Means	Non-rural schools		Rural schools	
	Estimate	95% CI	Estimate	95% CI
NITL	0.000*	[0.000, 0.000]	0.076	[0.073, 0.078]
ITL	0.000	[0.000, 0.000]	0.201	[0.198, 0.204]
TB	0.000	[0.000, 0.000]	-0.005	[-0.008, -0.003]

Notes: * = for the comparison purpose, the three latent means for non-rural schools are fixed at zeros. TB = teacher burnout, ITL = instructional leadership, NITL = non-instructional leadership

Findings of Research Question 3

By applying a two-group SEM model, the authors investigated the extent that school rurality might make a difference in the above examined effects. The model fit indices are presented in Table 3. CFI is 0.949, TLI is 0.931, and both SRMR and RMSEA are smaller than 0.06, indicating the overall SEM model has a good fit. The results are presented in Table 4 and Figure 2. The results showed that for ITL’s effect on TB, non-rural teachers had a larger effect ($\beta = -0.203$, 95% CI [-0.205, -0.201]) than rural teachers ($\beta = -0.184$, 95% CI [-0.187, -0.181]). This means, ITL helps reduce TB, and ITL in non-rural schools is more helpful than in rural schools regarding its effect on reducing TB. For NITL’s effect on TB, however, the results showed that rural schools had a larger effect ($\beta = -0.264$, 95% CI [-0.267, -0.262]) than non-rural schools ($\beta = -0.209$, 95% CI [-0.211, -0.207]). This means, NITL helps reduce TB, and NITL in rural schools is more helpful than in non-rural schools regarding its effect on reducing TB. The authors developed a chart (see Figure 3) to further show how school rurality moderated TL’s effect on TB.

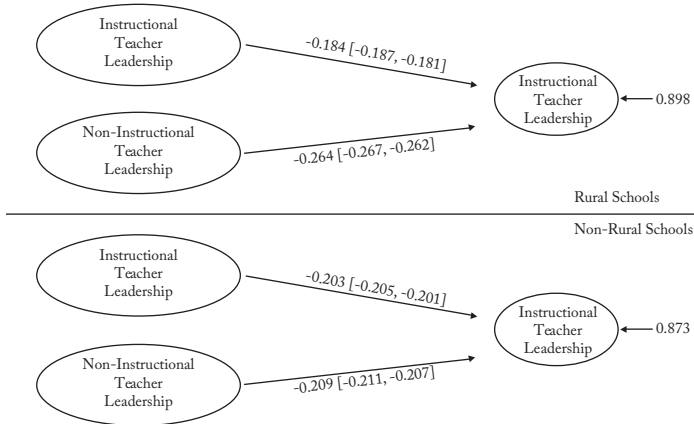
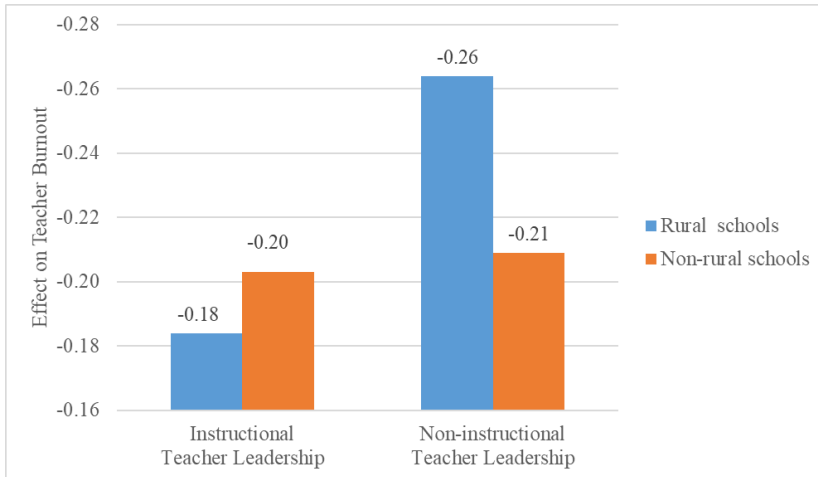


Figure 2. Teacher leadership’s effect on teacher burnout by school rurality



Note: The negative sign indicates the direction of the effect.

Figure 3. TL’s effect on TB moderated by school rurality

DISCUSSION

TL Practices Associated with TB

Our whole-sample SEM analyses showed that for both TL practices, the higher levels of TL are associated with lower levels of TB. Furthermore, NITL presented a larger effect than ITL. The findings confirmed one of Smylie's (1999) beliefs that TL initiatives could be stress-inducing and stress-reducing as well. In our case, it is stress-reducing, not stress-

inducing. This is aligned with the Sun and Xia's (2018) and Liu et al.'s (2021) findings that DL is positively associated with teacher job satisfaction and self-efficacy, and with Van Droogenbroeck et al.'s (2014) findings that higher levels of teacher autonomy are associated with lower levels of TB measures depersonalisation and emotional exhaustion.

The findings further suggest that NITL is more helpful than ITL when TB is concerned. This aligns with Van Droogenbroeck et al.'s (2014) findings where both instructional and non-instructional related workloads were positively associated with TB measures depersonalisation and emotional exhaustion while the non-instructional workload presented a smaller extent of association. Although TL does not necessarily equate with more workload, it seems to suggest that teachers more likely prefer the non-instructional than instructional ones no matter whether they are leadership roles or workloads.

School Rurality and TL Practices

Based on both the correlation analysis and the two-group latent means comparison, this study found that compared with non-rural schools, rural schools presented higher levels of ITL and NITL. Between the two TL practices, NITL is particularly strong in rural schools. This is particularly interesting as much of the recent literature exploring TL in rural schools defines TL using the lens of ITL, not NITL (Lotter et al., 2019; Wang et al., 2022).

Why do rural schools present higher levels of TL practices in general and higher levels of NITL in particular? This could be due to the fact that many rural schools are small and do not have many formal teacher leader roles such as department heads or curriculum leaders (Anderson, 2008). Some rural teachers often serve as the only subject teacher at their grade level (Glover et al., 2016). The lack of formal teacher leaders leaves rural teachers no choice but to "function by norms of collegiality and innate sense of community" (Woodland & Mazur, 2019, p. 822). As a result, rural schools are usually less restrictive, somewhat role free, and highly interactive (Anderson, 2008).

On the other hand, rural schools also lack formal administrators. Small rural schools are often left with one administrator per building and sometimes a superintendent has to take on principal duties and many other things. Rural districts in the US also have three times the number of combined schools (combinations of primary, middle and high schools in the same building) as non-rural US districts (NCES, 2023) and in the case of these combined schools, there is often only one administrator. This may require teachers to take on non-instructional tasks out of necessity.

School Rurality and TB

Based on the evidence from two different analyses, this study found that school rurality does not make a difference in TB. This tells us that in general, rural teachers' TB level is not that different from non-rural teachers. This conclusion still holds after taking the four teacher demographic variables into account. The finding is consistent with Abel and Sewell's (1999) study in which they found same levels of TB between rural and urban

teachers on all the three aspects: emotional exhaustion, depersonalisation, and personal accomplishment. Their study, however, found that two sources of stress differed with rural teachers having better working conditions and staff relations.

These findings do not necessarily mean that TB is not a future concern or a concern of subpopulation. Since the data was collected in 2020–2021 during the COVID-19 pandemic, the pandemic may have influenced the findings and the situation could be different before or after pandemic. Also, this study found that rural female teachers tend to have higher level of TB than non-rural female teachers. The gender difference aligns with Rumschlag's (2017) finding that Ohio rural teachers' experience of burnout varied by gender. Female teachers, particularly rural female teachers, need more attention regarding their burnout levels and the associated outcomes such as attrition.

School Rurality and TL Practices' Effects on TB

Based on the two-group SEM analysis, this study found that school rurality does make a difference in TL practices' effects on TB. In other words, TL practices' effects on TB depend on school rurality. Specifically, this study found that ITL showed a larger effect on TB in non-rural schools than in rural schools; while for NITL, rural schools presented a larger effect on TB than non-rural schools. Previous studies noted that TL can lead to TB (Little & Bartlett, 2002; Lieberman & Miller, 2004) or that TL's effect on TB could be either positive or negative (Smylie, 1999; York-Barr & Duke, 2004). This study extended the previous findings from three aspects. First, based on teacher influence-based definition and operational measure of TL, this study found TL practices could be burnout reducing. Second, this study found that the extent that TL reduces TB actually differs between rural and non-rural schools. Third, the difference in the effects, however, also depends on the specific type of TL practices. These more nuanced findings are new additions to current understanding and knowledge of TL's effect on TB.

CONCLUSION

Based on the findings and our discussion, three conclusions arose. Conclusion 1: TL does make a difference in TB with higher levels of TL practices are associated with lower levels of TB. This is true for both instructional and non-instructional TL practices. Conclusion 2: rural schools presented higher levels of TL practices. Again, this conclusion holds for both measures of TL: instructional and non-instructional practices. Conclusion 3: rural teachers presented the same levels of burnout as non-rural teachers. Conclusion 4: school rurality does moderate the two TL practices' effect on TB. The moderation is particularly obvious for NITL where rural schools showed a much larger effect of TL on TB.

IMPLICATIONS

Overall Implications

First of all, our study found that rural and non-rural teachers presented the same levels

of burnout. The T B problem is then a universal challenge to all US public schools and it is not unique to just rural or non-rural areas. As a result, all levels of administrators and policymakers are encouraged to take actions on this issue. Given our findings that both TL practices are inversely associated with TB, school administrators and policymakers should consider policies, professional development and learning opportunities to develop and advance teachers' leadership skills and opportunities, which might be able to raise teacher ownership and alleviate burnout to a great extent. This study also found that some certain groups of teachers presented higher levels of burnout and thus deserve particular attention. These teachers could be either female, minority, or less experienced (e.g., new teachers), or teachers with any combinations of these characteristics.

Regarding the two TL practices, this study found that male teachers presented higher levels of both instructional and non-instructional TL than female teachers. It seems there is a gender gap regarding teachers' leadership opportunities, particularly for the instructional leadership where no other teacher demographic factors showed impressive effect. Therefore, policies or programs are needed to further improve female teachers' leadership opportunities and skills in the area of curriculum and instruction and in the area of administration as well.

Implication for Rural Schools

For rural schools, this study found that female, non-White minority teachers with higher degrees had higher levels of burnout than White male teachers with lower degrees. Both gender and race presented larger effects on TB in rural schools than in non-rural schools, showing rural female and minority teachers are at greater risk of burnout than their non-rural counterparts. Experience is still helpful to lower burnout in rural schools, but not as helpful as in non-rural schools. The most astonishing finding is that higher degree is associated with higher levels of burnout in rural schools, while higher degree is associated with lower levels of burnout in non-rural schools. This seems to suggest that higher degrees do help lower TB, but it only works in non-rural schools not in rural schools. Policy makers and administrators need to pay attention to rural female, minority teachers who have fewer years of experience and higher degrees. School administrators are encouraged to provide more leadership opportunities to these teachers since leadership opportunities help reduce burnout. It is particularly effective when rural teachers get involved in administrative leadership since NITL showed the largest effect on TB in rural schools and it is much larger than its effect on TB in non-rural schools. Thus, providing teachers with a voice in administrative tasks or problems can positively affect TB and in turn, prevent some teacher attrition.

Implication for Non-Rural Schools

For rural schools, this study found that female teachers presented higher levels of burnout than male teachers, and more experienced teachers showed lower levels of burnout than experienced teachers. Race did not show as strong an effect on burnout as in rural schools. And teacher's degree showed a positive effect indicating higher degrees help reduce burnout. Non-rural administrators should look after female teachers when burnout is a concern and encourage teachers to pursue higher degrees. Policymakers and administrators should also

provide teachers with opportunities to lead since getting involved in decision-making can have a positive impact on burnout. Non-rural schools generally have more teachers per grade level and per class relative to rural schools. This along with the traditional hierarchical leadership structures in non-rural schools means that decisions regarding curriculum and standards are often made further away from the average teacher and by providing more teachers with the opportunity to provide input on these decisions can positively affect TB.

LIMITATIONS AND FUTURE DIRECTIONS

Our study utilised a single NTPS survey year which alone is a limitation, but that year also happened to be the first full academic year for the US schools during the COVID-19 pandemic. This may not provide the clearest perspective of the relationship between TL and TB in general. However, the COVID-19 pandemic may have also reset this relationship which remains to be seen after analysing the results of the next NTPS survey. Luckily, the NTPS surveys often contain the same basic questions from which these variables were derived and these results can be checked against those of past and future surveys. By using the NTPS survey, this study is restricted in the questions being asked in the survey and thus does not have all measures of the three dimensions of burnout according to the MBI instrument (Maslach et al., 2023). The authors endeavoured to find the most salient survey questions to TB while avoiding the job satisfaction question as mentioned in the literature review which does not fully encompass TB.

More research on the association between TL and TB is needed and could start with additional years of the NTPS. Regarding the 2020–2021 survey data, COVID-19 was prevalent during this administration and the NTPS included questions about how the pandemic affected various aspects of education. Diving into how the pandemic and associated classroom closures, online learning, and generally added responsibilities for teachers affected their perception of leadership and burnout would prove valuable. Lastly, the discrepancies between male and female teachers may be due, in part, to the sizes of each population and possibly school level with female teachers representing the majority of elementary school teachers. A look at TL and TB relative to school level could help identify causes for these discrepant findings.

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APPENDIX

Variables description and descriptive statistics

Variable name	Item number in NTPS	Description or coding	Descriptive statistics
Question: How much actual influence do you think teachers have over school policy AT THIS SCHOOL in each of the following areas?			
Instructional teacher leadership	T1700	Setting performance standards for students at this school	M = 2.48 V = 0.93
	T1701	Establishing curriculum	M = 2.64 V = 0.97
Non-instructional teacher leadership	T1702	Determining the content of in-service professional development programs	M = 2.35 V = 0.83
	T1703	Evaluating teachers	M = 1.72 V = 0.70
	T1704	Hiring new full-time teachers	M = 1.96 V = 0.82
	T1705	Setting discipline policy	M = 2.13 V = 0.84
	T1706	Deciding how the school budget will be spent	M = 1.76 V = 0.69
Question: To what extent do you agree or disagree with each of the following statements?			
Teacher burnout	T1746	I don't seem to have as much enthusiasm now as I did when I began teaching	M = 2.38 V = 1.12
	T1747	I think about staying home from school because I'm just too tired to go	M = 1.98 V = 1.08
Teacher gender		0 = Male	24.86%
		1 = Female	75.14%
Teacher race/ethnicity		0 = White Non-Hispanic	81.07%
		1 = Minority	18.93%
Teacher's highest degree attained		1 = Associate's or no college	M = 2.71
		2 = Bachelor's	V = 0.47
		3 = Master's;	
		4 = Specialist or Certificate	
		5 = Doctorate or Professional	
Teacher experience		Years of total teacher experience	M = 14.48 V = 85.59
School rurality		0 = non-rural	77.54%
		1 = rural	22.46%

Data source: "National Teacher and Principal Survey" (NTPS) public school teacher data, 2020–2021, The U.S. Department of Education, National Centre for Education Statistics.