

Race and Gender Differences in Teacher Perceptions of Student Homework Performance: a Preliminary Examination

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Published online: 24 October 2017

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Abstract Although most students regularly complete homework, the extent to which race and gender influence teacher perceptions of homework performance has been largely unstudied. However, individual characteristics, such as race and gender, have been shown to meaningfully influence many aspects of students' educational experiences and outcomes, and it is plausible that race and gender differences may exist in teacher perceptions of homework performance. This study used analysis of variance (ANOVA) to examine student gender and race differences in teacher ratings of three dimensions of homework performance (student competence, parent support, and homework completion). Findings indicated that teachers rated girls and White students as having greater homework competence (ability to complete homework assignments) than boys and racial minority (Black and Latino) students. No significant race or gender differences in teacher ratings of parent support for homework or in rates of homework completion were found. The examination of race and gender differences in homework performance has the potential to contribute to our understanding of race and gender gaps in academic achievement. As such, replication and further study of these differences are warranted.

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 $\underline{\underline{\mathscr{D}}}$ Springer

Keywords Homework \cdot Diversity \cdot Achievement gap \cdot Race \cdot Gender \cdot Education

In the USA, many students are regularly assigned homework (Cooper 2006). Despite the emphasis placed on homework, the usefulness of homework remains a topic of debate among scholars, teachers, and parents alike. Moreover, although individual characteristics, such as race and gender, play an important role in many aspects of education, the extent to which race and gender influence teacher perceptions of homework performance has been largely unstudied in the empirical literature. The purpose of this study was to examine race and gender differences in teacher perceptions of three homework performance domains: homework competence, homework completion, and parent support. Prior research on gender differences in homework performance is limited, and research on both race and gender differences in teacher perceptions of homework performance could serve as a crucial foundation for future studies examining issues related to teacher bias and the role that homework may, or may not, play in contributing to disparities in academic outcomes.

Role of Homework in Education and Academic Achievement

Homework is typically defined as "tasks assigned to students by their teachers to be completed outside the class" (Cooper 1989, p. 7) and is a requirement for most school age children. Undoubtedly, most students are assigned some form of homework as a part of their academic experience. However, there is significant disagreement and ambiguity in the literature, as well as in the popular media, regarding the value of homework in promoting academic achievement and other positive outcomes.

Drawbacks of Homework

Opponents have raised several concerns regarding homework. Some have argued that homework has deleterious effects, including creating negative attitudes about and loss of interest in school (Chen and Stevenson 1989); promoting undesirable behaviors traits, such as cheating and receiving extensive assistance (Cooper and Valentine 2001); increasing stress, which may lead to physical and emotional fatigue and mood disturbance (Kouzma and Kennedy 2002); and limiting time for leisure, physical activity, socializing, and community activities, all of which provide important lessons outside of the academic realm (Kravolec and Buell 2000).

The drawbacks of homework may be more salient for younger students. Some suggest that homework may be more burdensome for younger students and that they may be less able to derive benefits from it because they lack the self-regulation skills needed to complete homework (Cooper and Valentine 2001; Hoover-Dempsey et al. 2001). Younger students have a more difficult time coping with environmental distractors than older students (Hoover-Dempsey et al. 2001; Xu and Corno 1998). Moreover, younger students often lack effective study skills that would bolster the benefits of homework (Dufresne and Kobasigawa 1989).

Homework may also present challenges to students and their families. Tensions between mother and child may be magnified when maternal helping with homework occurs, especially with younger students (Levin et al. 1997). Major sources of contention between students and their families may arise from parents placing undue pressure on students to complete homework (Cooper et al. 2001; Corno and Xu 2004; Xu and Corno 1998; Xu and Yuan 2003) as well as from parents' unfamiliarity with the subject matter or with the teacher's instructional method (Cooper and Valentine 2001; Hyde et al. 2006). This confusion can lead to a breakdown in rapport and communication between home and school.

Some scholars have claimed that homework may exacerbate inequity between social classes because students from low-income households are less likely than middle-class students to complete homework due to after-school jobs and inappropriate study conditions (Coulter 1979). It has been argued that lower-income students may have additional responsibilities (e.g., family obligations, caring for siblings), and thus, they may appear to be less responsible in regard to homework relative to their more affluent peers. Moreover, some lower-income students drop out of school due to, among other factors, difficulty completing their homework (Antonucci and Mooser 1993), which may contribute to the perpetuation of social inequities. That said, Bempechat (2004) criticized the notion that homework harms low-income students and argued that this idea can exacerbate stereotypes and low expectations for low-income students. Notably, some research has indicated that low-income parents are as involved with their child's schooling as middle-class parents and that low-income students are held accountable for the same amount and type of homework (Sui-Chu and Willms 1996). As such, the extent to which homework may influence or contribute to educational inequities is unclear, and further research in this area is needed.

Benefits of Homework

While there are many vocal critics of homework, there is also a growing body of literature demonstrating notable benefits of homework. In a meta-analysis conducted by Cooper et al. (2006), homework was found to have a positive association with student achievement. The impact of homework on academic achievement may be particularly notable in math and science. In a recent meta-analysis of 28 studies conducted over 30 years, Fan et al. (2017) identified a small and positive relationship between homework (e.g., time spent on homework, frequency of homework assignments, homework completion) and academic achievement at the elementary and high school, but not the middle school, levels. Moreover, in an international comparison, the authors noted that the relationship between homework and academic achievement is stronger for students in the USA than for Asian studentssuggesting possible cultural influences on the effectiveness of homework (Fan et al. 2017). There is also evidence that students who regularly complete and turn in homework assignments perform significantly better in school (based on standardized achievement tests and curriculum-based measures) than those with similar abilities who do not complete homework assignments (Olympia et al. 1994).

Homework is thought to provide students with a foundation that facilitates future learning. Specifically, homework allows students to review material and reinforce concepts learned in class. This leads to the mastery and generalization of concepts, which can benefit students later on in life (Corno and Xu 2004). Moreover, homework can be used to evaluate mastery of materials and track student progress (Corno 2000). Additionally, homework can promote positive behaviors and skills (e.g., time management, organizational skills, self-confidence, self-direction, self-discipline, personal responsibility, independent problem solving) that are important in academic and other life domains (Corno and Xu 2004; Epstein and Van Voorhis 2001).

Homework may also have a positive influence on parents and families. Homework can be used to establish communication between parent and child by encouraging parents to become involved with their children's education in a natural way (Epstein and Van Voorhis 2001). Parents' attitudes toward homework impact children's attitudes by fostering intellectual and motivational skills (Bempechat 2004). As a result of parental involvement, students may become more aware of the connection between home and school. Parental



involvement in education-related activities, including homework, has been shown to have a moderate positive association with academic performance and educational outcomes (Jeynes 2007; Power et al. 2007). Further, the quality of parent involvement in homework (i.e., parent responsiveness and provision of structure during homework) for students in grade 5 has been shown to predict academic functioning 2 years later (grade 7; Dumont et al. 2014). Moreover, research findings suggest that at both the middle and high school levels, parent involvement in homework predicts academic achievement, and the effect is mediated by student self-reported homework behaviors (defined as time spent on homework and effort in homework assignments; Núñez et al. 2015).

Age and grade level have been shown to influence the relationship between homework and academic achievement. Overall, students who spend more time on homework have better academic outcomes. However, the correlation between time spent on homework and academic achievement is much stronger for students in grades 7–12 than for elementary students (Cooper et al. 2006). Muhlenbruck et al. (2000) posit that homework may have a lesser effect on academic achievement at the elementary school level because the intent is different—at the elementary school level, teachers assign homework to promote the development self-regulation skills rather than to improve academic skills per se. Thus, homework may still serve an important purpose at the elementary level even if the proximal influences on academic achievement are small (Cooper et al. 2006).

Aside from age and grade level, other demographic variables such as race and gender may also impact homework performance, and subsequently homework outcomes, but there is little research in this area. There is, however, considerable research on how race and gender moderate academic achievement (Farkas 2003; Buchmann et al. 2008; DiPrete and Jennings 2012). Because there are race and gender differences in many areas of academic achievement (e.g., reading, mathematics, writing achievement), there is reason to believe race and gender may also influence homework outcomes (Ainsworth-Darnell and Downey 1998; Buchmann et al. 2008; Mau and Lynn 1999).

Individual Differences in Academic Achievement

There are a number of individual student characteristics that influence academic achievement including intelligence (e.g., Watkins et al. 2007), motivation (e.g., Fortier et al. 1995), and learning behaviors (e.g., Schaefer and McDermott 1999). Students' race and gender have also been shown to significantly and meaningfully influence their academic experiences and outcomes (e.g., Delamont 2012; Ladson-Billings and Tate 2014). A brief discussion of the role of race and gender on

academic achievement, as well as the impact of teacher perceptions follows.

Race and Academic Achievement

A well-documented and oft discussed gap in academic achievement exists whereby White students outperform racial minority students on various indicators of achievement including standardized tests, grades, and high school graduation rates (see Condron et al. 2013. The reasons for this achievement gap are complex and multi-faceted. There are many proposed explanations for the racial achievement gap, including differences in engagement (perhaps due to cultural mismatch of curricular materials; Mau and Lynn 1999); availability of educational opportunities (Entwisle and Alexander 1994); school readiness (Magnuson and Waldfogel 2005); and home environment (e.g., family resources, mismatch between vocabulary used at home and at school, SES; Brooks-Gunn et al. 1996; Suzuki and Valencia 1997). It is also crucial to consider the extent to which larger societal factors (e.g., bias, discrimination, differences in teacher expectations, etc.) contribute to achievement differences across racial groups.

The Role of Teacher Perceptions and Expectations

Perceptions and bias toward racial minority students have been shown to contribute to disparities in academic achievement, particularly between Black and White students (e.g., Farkas 2003; Ferguson 2003). As outlined by Farkas (2003), the expectations that teachers and administrative personnel have for students can influence teaching practices and educational placements, thereby impacting both the quantity and quality of learning opportunities. Lower expectations for racial minority students and students with lower socio-economic status (SES) may result in students being placed in less challenging academic programs and exposed to less demanding curricula (Ansalone 2001). These lowered expectations for racial minority students are seen as early as kindergarten (Ansalone 2001; West et al. 2000). Race may also impact teacher-student interactions. For example, White students tend to receive more praise and feedback than Black students (Casteel 1998). For these reasons, it is important to understand differences in teacher expectations for student in a variety of academic areas, including homework performance.

Impact of Race on Homework Outcomes Several studies have produced evidence suggesting that racial differences that exist in many domains of academic achievement may also apply to homework performance. For example, findings from one study indicated that Black students were less likely to complete homework than White students (Ainsworth-Darnell and Downey 1998). In a longitudinal study, Mau and Lynn (1999) found statistically significant differences between racial groups in the number of hours per week spent



completing homework. Overall, Mau and Lynn found that in addition to completing more hours of homework, Asian and White high school students obtained significantly higher scores on tests for mathematics, reading, and science relative to Black and Hispanic students. The researchers suggested that the number of hours devoted to homework was associated with racial differences in achievement. However, it is unclear whether differences in academic skills that result from differences in educational opportunities or experiences may have made it more difficult for Black and Hispanic students to complete assignments. In summary, research findings indicate that there may be racial differences in the amount of homework completed and the number of hours spent on homework. However, it is not clear whether racial differences exist in performance on homework (e.g., quality of homework completed) and teacher perceptions thereof. The present study extends findings from prior research and examines racial differences on three dimensions of homework performance: parent support, student competence, and homework completion.

Gender and Academic Achievement

Research suggests that there are gender differences in academic achievement, but that these differences are largely dependent on age and how academic achievement is defined (i.e., test scores versus grades; Buchmann et al. 2008). While boys tend to score higher on standardized tests, current trends indicate that girls outperform boys on other measures. Girls tend to get higher grades, complete high school at a higher rate, and enroll in and finish college at higher rates than boys (Buchmann et al. 2008; DiPrete and Jennings 2012).

There are still many questions in the literature regarding gender differences in academic achievement. There is contention among researchers on the issue of whether teachers systematically favor one gender over the other and the extent to which the gender gap in academic achievement is due to actual or perceived differences between the genders. For instance, socially appropriate behaviors may influence measures of academic achievement. Girls typically display better social skills and classroom behavior and fewer externalizing symptoms compared to boys (Leadbeater et al. 1999). Specifically, girls tend to show higher levels of attentiveness, organizational skills, leadership qualities, and interest in school compared to boys (Buchmann et al. 2008). Diprete and Jennings (2012) posit that if students are perceived as well-adjusted and wellbehaved, teachers are more likely to grade them favorably. This observation is consistent with other research indicating that teachers are more likely to rate girls as being less disruptive and putting forth more effort into schoolwork compared to boys (Downey and Vogt Yuan 2005). Farkas et al. (1990) found that teacher perceptions of the non-cognitive characteristics of students were powerful determinants of course grades, even when cognitive performances on basic skills and coursework mastery were controlled. In summary, research has consistently revealed gender differences in academic achievement, but the extent to which gender-based expectations and perceptions influence these differences is unclear.

Because there seems to be a general consensus that there are differences in academic achievement between boys and girls, it is reasonable to expect that these differences might extend to homework outcomes. Cooper (1989) found that gender did not significantly influence the relationship between the homework and achievement. However, current research indicates that there may be gender differences in other aspects of homework. Some research suggests that girls generally hold more positive attitudes toward homework than boys and put forth more time and effort in completing homework (Mau and Lynn 2000), which may contribute to better grades.

Present Study

Homework is an important component of education, has a meaningful influence on grades, and may be related to academic achievement and personal development (Cooper et al. 2006). Because teachers assign and grade homework, their perceptions of homework performance are important. However, the extent to which teacher perceptions of homework performance differ by race and gender is unclear. Given extensive literature on the existence and outcomes of racial and gender differences in teacher perceptions of and expectations for students (e.g., Diamond et al. 2004; Tenenbaum and Ruck 2007), it is reasonable to expect that these differences might also extend to homework performance. Further, given the literature on the challenges and barriers that low-income and minority students face related to homework (e.g., Antonucci and Mooser 1993), it is also reasonable to expect that homework performance differences may exist as a result of said barriers. The purpose of this study was to examine differences in teacher ratings of homework performance across race and gender. Specifically, gender and race differences on three dimensions of homework performance (student competence, homework completion, parent support) were examined. Based on prior literature indicating that students of lower SES and racial minority students are at increased risk for homework problems (e.g., Ainsworth-Darnell and Downey 1998), it was hypothesized that (1) racial minority students would receive lower ratings on measures of teacher-perceived homework completion, student competence, and parent support. Based on prior research indicating that girls obtain higher grades and have higher teacher-reported academic motivation, it was also hypothesized that (2) girls would receive higher ratings on measures of teacher-reported homework performance compared to boys.



Method

Participants

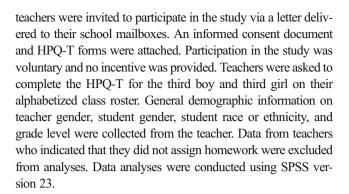
Teachers from six rural and suburban Illinois school districts rated students in grades 1–6 on the *Homework Performance Questionnaire-Teacher Scale* (HPQ-T; Power et al. 2007). Each participating teacher (96.4% female) was asked to rate two randomly selected students. A total of 165 students were rated (boys [n=85, 51.5%], girls [n=80, 48.5%]). In regard to race/ethnicity, 55.2% of the students were White (n=91) and 44.8% were racial minority students (n=74). Of the racial minority students, 56 were Hispanic/Latino (75.7%), and 18 were Black (24.3%). The distribution across grade level included 16.4% enrolled in first grade, 26.1% in second grade, 15.8% in third grade, 19.4% in fourth grade, 10.3% in fifth grade, and 11.5% in sixth grade (the grade level of one student was not reported).

Measures

The Homework Performance Questionnaire-Teacher Scale (HPQ-T; Power et al. 2007) is a homework assessment instrument that has been a useful tool in the evaluation of homework assets and deficits, and several studies have supported the psychometric properties of the scale (Mautone et al. 2012; Pendergast and Watkins 2009; Pendergast et al. 2014; Power et al. 2007). The version of the HPO-T used in this study was a 25-item measure that asks teachers to rate a student's homework performance based on three scales: parent support (7 items), student competence (10 items), and homework completion (5 items). The homework completion subscale contains items that tap the frequency and consistency with which homework assignments are completed (e.g., "Homework is finished," "Homework is turned in by the deadline,"). The student competence subscale is designed to assess teacher's perceptions of students' ability to complete homework assignments (e.g., "Homework is easy for the student," "Student can do homework independently,"). The parent support subscale is designed to assess teacher perceptions of parental involvement in homework (e.g., "Parents disagree with homework policies," "Parents try to assist with homework,"). Items are scored as percentages of the time a student has exhibited the specific homework-related behavior over the past 4 weeks. Each item utilizes a ten-point scale with each value corresponding to the estimated percentage of time the behavior was observed. Cronbach's a values were also computed for each of the HPQ-T scales: parent support (a = .94), student competence (a = .87), and homework completion (a = .94).

Procedure

Upon approval from the Institutional Review Board at the Pennsylvania State University and school district administrators,



Results

To examine the influence of gender and race on teacher perceptions of homework performance, a 2 (gender) \times 2 (race) MANCOVA, controlling for grade level, was conducted with the three HPQ subscale scores as dependent variables. Grade level was added as a covariate due to the potential differences in ratings of students' homework competence, completion of homework, and parental involvement as a result of grade level and age, as discussed above (e.g., lower parental involvement for older students relative to younger students). Statistically significant main effects for race [Wilk's Lamda = .94, F(3, 158) = 2.97, p = .03, $\eta^2 = .05$] and gender [Wilk's Lamda = .95, F(3, 158) = 2.70, p = .04, $\eta^2 = .04$] were obtained. Therefore, follow-up univariate ANOVAs were conducted to better describe race and gender differences in homework performance.

Student Competence

A small but statistically significant group difference on Student Competence was found for race [F(1, 161) = 6.32,p = .017, $\eta^2 = .04$, d = .35] where White students (M = 76.50; SD = 13.42) were rated as having more homework competence than racial minority students (M = 70.67; SD = 18.62). Thus, the hypothesis that (1) racial minority students would obtain lower ratings on teacherperceived homework performance was supported in regard to student competence. Additionally, female students (M = 76.97; SD = 13.99) were rated as having significantly more homework competence than male students (M = 72.73; SD = 16.37) with a small effect size $[F(1, 142) = 4.85, p = .013, \eta^2 = .04, d = .27]$ on Student Competence. Thus, the hypothesis that (2) girls would obtain higher ratings than boys on teacherperceived homework performance was supported in regard to student competence. The race by gender interaction effect was not statistically significant [F(1,142) = .02, p = .90].



Homework Completion

No statistically significant group differences on Homework Completion were found for race $[F(1, 142) = .04, p = .84, \eta^2 = .001, d = .06]$ or gender $[F(1, 142) = 1.93, p = .17, \eta^2 = .01, d = .22]$. The race by gender interaction effect was also non-significant [F(1, 142) = .03, p = .87). Thus, the hypotheses of race and gender differences in teacher perceptions of homework completion were not supported.

Parent Support

No statistically significant group differences were found on Parent Support for race $[F(1, 142) = .15, p = .70, \eta^2 = .01, d = .22]$ or gender $[F(1, 142) = .23, p = .64, \eta^2 = .00, d = .01]$. The race by gender interaction effect was also not statistically significant [F(1, 142) = .40, p = .53). Thus, the hypotheses of race and gender differences in teacher perceptions of parent support for homework were not supported.

Discussion

Researchers have posited several putative reasons for race and gender differences in academic achievement, and differences in teacher perceptions of students may play an important role in regard to differences in academic achievement including true differences in student achievement stemming from environmental factors, teacher biases, and differences in teacher expectations for students (Buchmann et al. 2008; DiPrete and Jennings 2012). However, race and gender differences in teacher perceptions of various facets of homework performance have been largely unexamined. This study examined race and gender differences in teacher perceptions of three dimensions of student homework performance: Student Competence, Homework Completion, and Parent Support.

In the present study and consistent with hypotheses, teachers rated girls and White students higher than boys and racial minority students on Student Competence (i.e., teachers perception of student's ability to complete homework). This suggests that teachers perceived girls and White students as having greater ability and skills related to homework than their male and racial minority counterparts. Although the effect sizes were small, these differences may be important given the pervasiveness of homework for children in the USA. Moreover, various aspects of homework (e.g., time spent on homework) have been shown to predict academic achievement (Cooper et al. 2006), and boys and racial minority students have been shown to lag behind their female and White counterparts in several domains of achievement (e.g., reading performance, rates of high school graduation; e.g., DiPrete and Jennings 2012; Farkas 2003). It is possible that race and gender differences in homework competence, or teacher perceptions thereof, may contribute directly or indirectly to these achievement gaps. However, based on these findings, it is not possible to determine whether teachers are identifying true differences in homework competence, if biases are influencing teacher judgment of homework ability, or some combinations of both are influencing the identified differences. As such, examination of the role of homework, homework performance, and teacher perceptions of student homework competence in the development and maintenance of achievement gaps are crucial subjects for future scholarly inquiry.

Contrary to hypotheses, there were no significant race or gender differences in teacher ratings of parent support for homework or in homework completion, and these non-significant findings may be as important and meaningful as the statistically significant findings. At least in regard to homework, the non-significant findings counter the narrative that achievement gaps exist as a function of differences in student work ethic or parent support. In the present study, there were no statistically significant differences between racial or gender groups in regard to teacher ratings of homework completion or parent support for homework. These findings support the notion that racial minority students, as well as boys, and their parents, were as invested in homework, and academics, as their White and female counterparts (Bempechat 2004).

Limitations and Future Directions

The sole objective of this preliminary study was to evaluate race and gender differences in teacher perceptions of homework performance in order to identify important avenues for future research. It is important that these findings not be interpreted beyond the stated objective. This study had several limitations which must be addressed in future research. First, there was no "objective" measure of student homework performance or student ability in this study. As such, it was not possible to explicitly evaluate whether teachers' ratings of student competence reflected actual group differences versus the extent to which racial or gender bias may have influenced teacher perceptions. We strongly encourage future researchers to attempt to better understand the underlying reasons for such differences. That said, in the classroom setting, teachers grade homework assignments, and no "objective" measures are used. Thus, although the design of the present study does not allow for examination of the source of differences in race and gender differences in student homework competence, this method allowed for an evaluation of homework differences that is consistent with how homework is actually evaluated in the school setting. Thus, regardless of the source of the identified differences, the fact that these teacher-perceived differences exist should serve as a "red flag" for researchers and practitioners, and further research should be conducted to



better understand the problem (if one exists) and identify appropriate avenues for intervention.

Additionally, research examining the extent to which individual and demographic differences in homework performance (or teacher perceptions thereof) influence academic achievement would be a fruitful avenue for future scholarly inquiry. More specifically, future studies (ideally longitudinal studies) that include multiple measures of student homework quality, student ability, and student academic achievement to directly test the extent to which teacher perceptions of student homework performance influence student achievement would be very valuable. Also, in the present study, participants were grouped into two categories based on race: racial minority and White due to small sample size of Racial Minority participants. Future research that examines students from each racial minority group separately, and that accounts for SES differences, will be important. The present study was based on a relatively small sample of students from rural and suburban Illinois school districts. The findings may not generalize to students from urban areas or from other geographic regions. Future research across other diverse groups, including diverse income levels and international settings, would be useful. Moreover, research suggests that an expectancy-value framework may apply to homework performance whereby students demonstrate improved homework performance when they expect to perform well on the task and value the task (Trautwein et al. 2006). Therefore, future research examining the role of demographic factors in homework performance relative to the expectancy-value framework may be particularly useful.

Implications

In light of an abundance of literature demonstrating that teacher perceptions are related to discrepancies in academic achievement between boys and girls (Buchmann et al. 2008; DiPrete and Jennings 2012) and between racial groups (Thomas & Stevenson 2009; Alvidrez and Weinstein 1999), the examination of race and gender differences in teacher perceptions of homework performance is an important and novel area of inquiry. The findings that teachers perceive boys and racial minority students as having less homework competence than girls and White students warrants replication and further study. Moreover, these findings, when considered alongside the large body of research demonstrating differences in teacher perceptions of minority students, underscore the importance of continuing to provide teachers with training in diversity issues and to encourage a climate of multiculturalism and diversity awareness in the school environment, as well as the importance of ensuring that all students have the requisite skills to complete homework and other academic activities.

Acknowledgements Special thanks are due to Jonathon Cavanaugh, Jenny Kusy, and Christi Blankenstein for assistance in Homework Performance Questionnaire data collection, coding, and entry.

Compliance with Ethical Standards All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. All respondents provided written informed consent.

Conflict of Interest The authors declare that they have no conflict of interest.

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