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ASSOCIATION BETWEEN SOCIAL CAPITAL AND SELF-RATED HEALTH IN SMALL AND LARGE SECONDARY SCHOOL CLASSES IN CROATIA

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ABSTRACT

The purpose of the present study was to determine the associations between social capital domains on self-rated health in small (≤22 students/class) and large (≥23 students/class) secondary school classes. Participants were 3427 secondary school students (50.7% females/49.3% males) aged 17-18 years. The main focus was self-rated health. The social capital domains that were explored comprised of family, neighbourhood and school social capital. The associations between these social capital domains and self-rated health were examined by using multiple logistic regression analysis. In small classes, self-rated health was positively associated with family and neighbourhood trust, informal social control, vertical and horizontal school trust and reciprocity at school In large classes, self-rated health was only associated with family trust, neighbourhood trust and reciprocity at school. Schools, clubs and teaching centres may apply the findings of this study to inform decisions based on the class size where health and social capital are important learning outcomes.

***Keywords*:** Adolescents; Schools; Class size; Self-rated health; Social capital.

INTRODUCTION

Social capital has become a mainstream concept in the public health discourse in the last decade (Kawachi *et al.*, 2008). It is defined broadly as the capacity of members of a community to cooperate with others to achieve valued social outcomes, such as economic growth, the prevention of crime, the smooth functioning of democracy, and the promotion of health (Halpern, 2004; Algan *et al.*, 2013). Social capital also encompasses the elements of personal and networking capacity within a population group (Bhandari & Yasunobu, 2009). These elements include the capacity to create and transmit information, ideas, opportunities, trust, and cooperation. Put simply, social capital is constituted by the informal structures and social networks that facilitate co-operation and collective action by groups of individual (Halpern, 2004; Bhandari & Yasunobu, 2009). According to Rothstein (2003), the strength of examining social capital is in its ability to bring together important sociological concepts, such as social support, integration and social cohesion. Studies on social capital have continued to expand in

new directions, extending into new applications and the analysis of new areas of population health (Kawachi *et al.*, 2008).

Associations between social capital and health have been investigated in adult (Kim *et al.*, 2008; Murayama *et al.*, 2012) and youth populations (Novak *et al.*, 2015; Borges *et al.*, 2010). In previous studies, social capital has been found to be related to family, neighbourhood and school capital (Novak *et al.*, 2015; Inaba *et al.*, 2015; Maass *et al.*, 2016; Novak *et al.*, 2016; Novak *et al.*, 2017). For example, Novak *et al.* (2015) reported positive associations between family, neighbourhood and reciprocity at school with self-rated health among Croatian adolescents aged 17-18 years. Further research by Novak *et al.* (2016) found that the family social capital was the only domain strongly associated with self-rated health among Serbian high-school students, while Novak *et al.* (2017) reported positive associations between family, neighbourhood and school social capital with good self-rated health among participants aged 14–19 years from three European countries, namely Croatia, Lithuania and Serbia.

Borges *et al.* (2010) showed positive associations between low-community trust and poorer self-rated health among Brazilian adolescents. However, class size has emerged as a repeated topic when considering the capacity of schools to deliver on any learning or social outcome. Most of the studies have tried to determine whether the class size has been associated with student achievement (Krueger & Whitmore, 2001; Finn *et al*., 2003; Hattie, 2009; Chetty, 2011; Fredriksson *et al*., 2013).

The best evidence of class size and student achievement came from Hattie's (2009) synthesis of meta-analyses that showed that class size has a relatively small effect on student achievement outcomes when compared to other numerous possible school interventions. However, smaller classes have had positive associations on life outcomes, such as lower rates of juvenile criminal behavior and higher rates of high-school graduation rates (Mosteller, 1995). Finn *et al.* (2005) also showed that children from smaller classes continued to have higher engagement ratings in subsequent grades.

PURPOSE OF RESEARCH

After an extensive literature search, there have been no studies to date investigating the influence of social capital domains on self-rated health separately in small and large classes. Thus, the aim of this study was to investigate the associations between family, neighbourhood and school social capital with self-rated health among adolescents aged 14–18 years attending small and large classes.

METHODOLOGY

Participants and ethical clearance

A survey was administered among secondary school students in Zagreb, Croatia that has a population of approximately 1,000,000 people. A convenience sampling approach based on the proximity to the university was used to recruit participating schools. All 20 schools that were approached agreed to take part in the study, representing 3650 students enrolled in the 2013/14 school year. Active consent to participate in the study was sought and obtained from the parents

of each subject, as well as the students themselves. The 3427 students consisted of 1688 males and 1739 females, aged 17–18 years, who consented and responded to the survey (93.8%), which was given during class times determined by the school. Finally, the data of 3426 students aged 17–18 years were analysed. The study was approved by the Institutional Review Board of the lead university (Ethical clearance number: 16/04/14).

Instruments

Self-rated health

Self-rated health of these adolescents was assessed using the standard single-item measure: "How do you perceive your health?" "The Perceived Health Likert Scale" (Eriksson *et al.*, 2001) is an easily administered and widely used outcome measure in social epidemiology studies, and it has been shown to be a reliable predictor of morbidity and healthcare use in adults (Fylkesnes, 1993) and youth (Koivusilta *et al.*, 2003). Possible responses are arranged along a five-item Likert-type scale: 1=very poor, 2=poor, 3=fair, 4=good, 5=excellent. The Likert Scale was split into a binary outcome measure, that is, "good" and "excellent" responses were collapsed into one category (good health), whilst "poor", "very poor", and "fair" were designated as poor health.

Social capital and class size indicators

On the survey, individual perceptions of social capital in the family, neighbourhood and high school settings were inquired about (Baker, 2000; Finn *et al.*, 1990; Israel *et al.*, 2001). Identical question wording were used to those from earlier surveys (Furuta *et al.*, 2012; Novak *et al.*, 2015; Novak *et al.*, 2016; Novak *et al.*, 2017). The questions were asked in the native language of the pupils and the translation into English was done only for publication purposes.

Family social capital was assessed by the question: "Do you feel your family understands and gives attention to you?" (Finn *et al.*, 1990; Krasny *et al.*, 2015). *Neighbourhood* social capital was assessed by using two items: "Do you feel people trust each other in your neighbourhood (neighbourhood trust)?"; "Do you feel that your neighbours step in to criticise someone's deviant behaviour during high school (informal social control)?" (Finn *et al.*, 1990). *School* social capital was assessed by three items: "Do you feel teachers and students trust each other in your high school?" ('vertical school trust'); "Do you feel students trust each other in your high school?" ('horizontal school trust'); and "Do you feel students collaborate with each other in your high school?" ('reciprocity at school').

The response options were: "strongly agree"; "agree"; "neither agree or disagree"; "disagree" and "strongly disagree". For each response, a dichotomous variable was created (high: "strongly agree" and "agree"; low: "neither agree nor disagree", "disagree" and "strongly disagree"). As marker of class size, the total number of students in the classroom were considered. Since there is no strong evidence of how many students represent small or large class sizes for these outcomes, the classes were divided into small (≤22 students/class) and large (≥23 students/class) based on the median class size of the sample.

Covariates

As a measure of physical activity, the students' total physical activity in the past seven days was considered. **Physical activity** was assessed using the validated short version of the International

Physical Activity Questionnaire (IPAQ) and was expressed as metabolic equivalent-hours per week (Craig, 2003). As additional potential mediators, the Body Mass Index (BMI) was considered based on the calculation from self-reported height and weight (scoring of responses in the range $\geq 25 kg/m^2$ vs. $<25 kg/m^2$ discriminates between respondents with and without high BMI).

Socio-economic status (SES) was entered in the regression models as a potential confounder, that is, theoretically associated with self-rated health and social capital (Subramanian *et al.*, 2002). The classification of SES was based on the occupation of both parents at the time when the research was conducted. Self-perceived socio-economic status was categorised into three levels as high (managers and professionals), middle (white collar) and low (blue collar) (Wang *et al.*, 2005) and it was dichotomised as high/middle (responses in the range 2–4) and low (responses in the range 5–6).

Psychological distress was also assessed as a potential confounder using the six-item Kessler scale by means of the questions: "About how often during the past 30 days did you feel nervous?", "During the past 30 days, about how often did you feel hopeless?", "During the past 30 days, about how often did you feel restless or fidgety?", "How often did you feel so depressed that nothing could cheer you up?", "During the past 30 days, about how often did you feel that everything was an effort?" and "During the past 30 days, about how often did you feel worthless?" (Kessler *et al.*, 2003). Each question is scored from 0 (none of the time) to 4 (all of the time). Scores of the six questions were then summed (0–24), with a lower score indicating low levels of psychological distress. Previous research has shown that dichotomous scoring of responses in the range 13+ versus 0–12 discriminates between respondents with and without significant psychological distress (Kessler *et al.*, 2003).

Procedure

The testing procedure took place in the morning period between 9:00 and 11:00am in twenty secondary schools. In consultation with the teachers, the examiner came at the beginning of the class, when all the children were in the classroom. The day before, each participant got a piece of paper with informed consent, which must have been signed by the parents/guardians. All participants were included in the study with permission of the parents/guardians.

At the start, the examiner introduced them to the study design and aims. It took 15 minutes to fill in the questionnaire. The students were informed that returning the completed questionnaire would be considered as their consent for the participation in the study. The examiner was available for any questions and to make sure that the wordings do not influence the potential answers of the students. The whole procedure took about 30 minutes. Students who did not want to participate in the study were asked not to hand over the questionnaires or leave the questionnaires empty. At the end, all students returned questionnaires and participated in the study. All the information of the participants was submitted anonymously.

Data analysis

All analyses were conducted in the Statistical Package for the Social Sciences (version 21.0. SPSS, Inc.). Differences between responses obtained as percentages were calculated using Chi-square test. As potential confounders, gender, self-perceived SES, and psychological distress

were considered. Physical activity and BMI were also included as potential mediators of the association between social capital and self-rated health. The associations between *family* (Model 1: Adjusted for gender, BMI, self-perceived socio-economic status, psychological distress and physical activity), *neighbourhood* (Model 2: Adjusted for gender, BMI, self-perceived socio-economic status, psychological distress and physical activity) and *school* (Model 3: Adjusted for gender, BMI, self-perceived socio-economic status, psychological distress and physical activity) social capital with self-rated health were analysed for both small (≤22 students) and large classes (≥23 students). Multiple logistic regression, using odds ratios (ORs) with 95% confident intervals (95% CI), was applied. Model 4 represents when *all the social capital domains* were entered simultaneously within the model (adjusted for gender, BMI, self-perceived socio-economic status, psychological distress and physical activity). Significance was set at $\alpha \leq 0.05$.

RESULTS

Study characteristics of the participants are presented in Table 1. Students from both small and large classes reported similar self-rated health, along with family trust, neighbourhood trust and informal social control. School social capital was significantly higher among students from small classes. Also, students from smaller classes reported lower levels of psychological distress and higher levels of self-perceived socioeconomic status.

The associations between family, neighbourhood and school social capital with self-rated health among students in smaller classes are presented in Table 2. A strong association was observed between family trust and self-rated health (OR 1.85; 95% CI 1.39–2.47) (Model 1). In Model 2, self-rated health was associated with both neighbourhood trust (OR 1.82; 95% CI 1.31–2.54) and informal social control (OR 0.75; 95% CI 0.59–0.96). Self-rated health was positively associated with vertical (OR 1.64; 95% CI 1.20–2.25) and horizontal school trust (OR 1.39; 95% CI 1.04–1.87), as with reciprocity at school (OR 1.36; 95% CI 1.04–1.78) in Model 3. When all the social capital variables were entered simultaneously, self-rated health remained associated with family trust (OR 1.67; 95% CI 1.25–2.25), neighbourhood trust (OR 1.51; 95% CI 1.07–2.11), informal social control (OR 0.74; 95% CI 0.57–0.95), vertical (OR 1.57; 95% CI 1.14–2.16) and horizontal school trust (1.37; 95% CI 1.02–1.84) and reciprocity at school (OR 1.32; 95% CI 1.01–1.72).

The associations between family, neighbourhood and school social capital with self-rated health among students in larger classes are presented in Table 3. Self-rated health was positively associated with family social capital (OR 1.84; 95% CI 1.38–2.45), neighbourhood trust (OR 2.07; 95% CI 1.48–2.91) and reciprocity at school (OR 1.59; 95% CI 1.23–2.07). When all the variables were entered simultaneously in Model 4, all mentioned social capital variables remained associated with self-rated health.

Table 1. **CHARACTERISTICS OF PARTICIPANTS**

Characteristics	**Small classes (≤22)** (N=1704) n (%)	**Large classes (≥23)** (N=1723) n (%)	**p-Value***
Self-rated health			
Poor	338 (19.7)	349 (20.2)	
Good	1373 (80.3)	1374 (79.8)	0.714
Family trust			
Low	303 (17.7)	310 (18.0)	
High	1408 (82.3)	1413 (82.0)	0.829
Neighbourhood trust			
Low	1304 (76.2)	1323 (76.8)	
High	407 (23.8)	400 (23.2)	0.693
Informal social control			
Low	1096 (64.0)	1104 (64.1)	
High	615 (36.0)	619 (35.9)	0.991
Vertical school trust			
Low	1206 (70.5)	1277 (74.1)	
High	505 (29.5)	446 (25.9)	0.017
Horizontal school trust			
Low	997 (58.3)	1136 (65.9)	
High	714 (41.7)	587 (34.1)	<0.001
Reciprocity at school			
Low	712 (41.6)	814 (47.2)	
High	999 (58.4)	909 (52.8)	<0.001
Gender			
Male	989 (57.8)	699 (40.6)	
Female	722 (42.2)	1017 (59.4)	<0.001
Body Mass Index			
Normal	1491 (87.1)	1513 (87.8)	
Overweight/obesity	220 (12.8)	210 (12.2)	0.553
Self-perceived socio-economic status			
Low	1072 (62.6)	1148 (66.6)	
High/middle	639 (37.4)	575 (33.4)	0.015
Psychological distress			
Low	1476 (86.3)	1403 (81.4)	
High	235 (13.7)	320 (18.6)	<0.001
Physical activity			
Low	284 (16.6)	211 (12.2)	
Moderate/vigorous	1427 (83.4)	1512 (87.8)	<0.001

* Chi-square test

Table 2. **ODDS RATIOS FOR GOOD SELF-RATED HEALTH IN SMALL CLASSES** (≤22 students)

Variables	**Model 1** OR (95% CI)	**Model 2** OR (95% CI)	**Model 3** OR (95% CI)	**Model 4** OR (95% CI)
Family social capital				
Low				
High	1.85 (1.39–2.47)***			1.67 (1.25–2.25)***
Neighbourhood trust				
Low				
High		1.82 (1.31–2.54)***		1.51 (1.07–2.11)*
Informal social control				
Low				
High		0.75 (0.59–0.96)*		0.74 (0.57–0.95)*
Vertical school trust				
Low				
High			1.64 (1.20–2.25)**	1.57 (1.14–2.16)**
Horizontal school trust				
Low				
High			1.39 (1.04–1.87)*	1.37 (1.02–1.84)*
Reciprocity at school				
Low				
High			1.36 (1.04–1.78)*	1.32 (1.01–1.72)*
Gender				
Male				
Female	0.44 (0.34–0.57)***	0.49 (0.38–0.63)***	0.50 (0.39–0.64)***	0.53 (0.41–0.69)***
Body Mass Index				
Normal				
Overweight/obese	0.72 (0.50–1.05)	0.75 (0.52–1.09)	0.76 (0.52–1.11)	0.75 (0.51–1.09)
Self-perceived socio-economic status				
High/middle				
Low	0.97 (0.75–1.25)	0.94 (0.73–1.21)	0.94 (0.73–1.22)	0.93 (0.72–1.20)

Continued

Table 2*. ODDS RATIOS FOR GOOD SELF-RATED HEALTH IN SMALL CLASSES** (≤22 students) ***cont.

Variables	**Model 1** OR (95% CI)	**Model 2** OR (95% CI)	**Model 3** OR (95% CI)	**Model 4** OR (95% CI)
Psychological distress				
High				
Low	0.99 (0.70–1.40)	0.99 (0.70–1.41)	1.04 (0.73–1.47)	1.01 (0.71–1.43)
Physical activity				
High/moderate				
Low	0.94 (0.68–1.31)	0.93 (0.66–1.28)	0.89 (0.64–1.24)	0.89 (0.64–1.25)

* p<0.05 ** p<0.01 *** p<0.001

Four models were examined in a sequence of logistic regression models considering clustering for schools and adjusting for gender, BMI, self-perceived socio-economic status, psychological distress and physical activity.
Model 1: Associations between *family social capital* and youth self-rated health.
Model 2: Associations between *neighbourhood social capital* and youth self-rated health.
Model 3: Associations between *school social capital* and youth self-rated health.
Model 4: Associations between *all social capital* variables and youth self-rated health.

***Table* 3. ODDS RATIOS FOR GOOD SELF-RATED HEALTH IN LARGE CLASSES** (≥23 students)

Variables	**Model 1** OR (95% CI)	**Model 2** OR (95% CI)	**Model 3** OR (95% CI)	**Model 4** OR (95% CI)
Family social capital				
Low				
High	1.84 (1.38–2.45)***			1.71 (1.28–2.29)***
Neighbourhood trust				
Low				
High		2.07 (1.48–2.91)***		1.88 (1.33–2.65)***
Informal social control				
Low				
High		0.96 (0.75–1.24)		0.98 (0.76–1.26)
Vertical school trust				
Low				
High			1.32 (0.95–1.84)	1.26 (0.90–1.77)

Continued

Table* 3. ODDS RATIOS FOR GOOD SELF-RATED HEALTH IN LARGE CLASSES** (≥23 students) ***cont.

Variables	**Model 1** OR (95% CI)	**Model 2** OR (95% CI)	**Model 3** OR (95% CI)	**Model 4** OR (95% CI)
Horizontal school trust				
Low				
High			1.15 (0.85–1.57)	1.09 (0.80–1.49)
Reciprocity at school				
Low				
High			1.59 (1.23–2.07)***	1.53 (1.18–2.00)***
Gender				
Male				
Female	0.54 (0.41–0.70)***	0.58 (0.44–0.76)***	0.58 (0.44–0.75)***	0.60 (0.46–0.80)***
Body Mass Index				
Normal				
Overweight/obese	0.47 (0.33–0.66)***	0.45 (0.32–0.64)***	0.44 (0.31–0.62)***	0.46 (0.32–0.65)***
Self-perceived socio-economic status				
High/middle				
Low	1.00 (0.78–1.29)	1.02 (0.79–1.32)	1.00 (0.78–1.30)	0.96 (0.74–1.24)
Psychological distress				
High				
Low	1.40 (1.05–1.88)*	1.45 (1.08–1.94)*	1.40 (1.04–1.87)*	1.42 (1.06–1.91)*
Physical activity				
High/moderate				
Low	1.13 (0.78–1.62)	1.11 (0.77–1.60)	1.11 (0.77–1.59)	1.11 (0.77–1.60)

* p<0.05 ** p<0.01 *** p<0.001

Four models were examined in a sequence of logistic regression models considering clustering for schools and adjusting for gender, BMI, self-perceived socio-economic status, psychological distress and physical activity.
Model 1: Associations between *family social capital* and youth self-rated health.
Model 2: Associations between *neighbourhood social capital* and youth self-rated health.
Model 3: Associations between *school social capital* and youth self-rated health.
Model 4: Associations between *all social capital* variables and youth self-rated health.

DISCUSSION

The aim of the present study was to investigate the associations between family, neighbourhood and school social capital with self-rated health among adolescents aged 14-18 years attending small and large school classes in Croatia.

To have a clearer understanding of the findings of this study, it is important to explain the Croatian social context and the approach to young people. During the 1980s in Croatia was a period of socialism and the beginning of the 1990s was very dramatic. Croatia underwent a period of war conflict that lasted until the mid-1990s. Because of the war conflicts, Croatia went through difficult times, like many other countries in transition. These processes and changes rapidly affected the youth of Croatia. The political transitions with the transition from childhood to adulthood are some of the reasons for this process and change (Ilisin & Potocnik, 2010).

Results from the current study showed strong associations between family social capital and self-rated health in both small and large classes. It means that students, no matter which class they attend, still consider family as the most important part and crucial source of support. Something that is often regarded as a crucial source of support for young people is family. Family is an important outlet in times of need and can provide a feeling of security (Morrow, 2001). Family represents the main community of the children, where the sense of protection and affiliation within the family was associated with good self-rated health and health behaviours among children and youth (Morgan & Haglund, 2009). Families provide an important source of social support especially in countries like Croatia. Socialism and free markets show the changes in hierarchical order and value structures (Kennedy *et al.*, 1998). According to Cotton (2001), students in smaller schools and classes were more likely to develop a sustained relationship with caring adults, such as parents who are concerned about their children's academics. Also, parents are always informed about the progress of their children in their studies, and can be a part of their education and social development (Wasley *et al.*, 2000).

As with family social capital, self-rated health was positively associated with neighbourhood trust among students, irrespective of class size. Whether the students attend small or large classes, a healthy community is very important to them. Previous research shows that young people in Croatian regularly spend their spare time with friends in the neighbourhood who partake in sport or other activities (watching TV and videos, movies, social media and listening to the music) (Ilisin & Potocnik, 2010). A few studies have reported positive associations between neighbourhood trust and self-rated health (Khawaja *et al.*, 2006, Novak *et al.*, 2015; Inaba *et al.*, 2015; Maass *et al.*, 2016; Novak *et al.*, 2017). Moreover, Khawaja *et al.* (2006) reported that certain distrust among adolescents were higher in communities with lower neighbourhood trust.

Similar results were obtained among Australian children, where those living in neighbourhoods with greater levels of socio-economic disadvantages, are more likely to experience adverse outcomes (Edwards & Bromfield, 2009). Those socio-economic disadvantages have an impact on parental mental health, behaviour and the home environment quality, which directly affect

children and youth outcomes (Leventhal & Brooks-Gunn, 2000). Edwards and Bromfield (2009) reported that parents' perception of safety in the neighbourhood and sense of belonging could explain children's level for conducting problems, due to socioeconomic disadvantages. One study showed that high neighbourhood trust was associated with low psychological distress among adolescents (Novak & Kawachi, 2015). Children who live in low trust communities reported worse psychological health and greater depressive symptoms (McPherson *et al.*, 2014). Low informal social control was associated with reporting good self-rated health.

Other findings suggest that by having a larger number of students in class, it creates the opportunity for the exclusion of students, thus, cliques start forming that lead to the lowered informal social control. To better understand this phenomenon, it would be important to discuss the definition of cliques. Cliques are a group of people that are not brought together by a genuine interest in each other. Instead, they are organised around power and popularity where one student can out-shine another. Cliques tend to do all activities together and have zero tolerance to branching friends outside of the group (Hartwell-Walker, 2013). Examples of negative behaviour include picking on or bullying others who look different, who like different things, or have different values, the clique maintains their exclusivity and the illusion of their superiority (Hartwell-Walker, 2013).

With this, the influential possibility towards the clique decreases the possibility of causing the increase in the deviant behavior amongst the neighbourhood students. Furthermore, the increment of the number of cliques in a class would ignite a competitive behaviour between cliques, possibly relating to further public disturbance. Youths who spend time with delinquent peers are at greater risk for engaging in substance use (Crawford & Novak, 2008) and antisocial behaviour (Stoolmiller, 1994). Substance use and antisocial behavior are rarely solitary activities during this period, further exemplifying the influence of peer groups on the behaviour of the individual (Heinze *et al.*, 2004). In a recent study by Fosco *et al.* (2012), parental monitoring was associated with the reduction in children-related problem behaviour over time. In a situation where the damage had already been done, it would be important to relate parental guidance on the children's upbringing and family social capital.

Vertical and horizontal trust and reciprocity at school were all positively associated with good self-rated health among secondary-school students from small classes in our study. In general, vertical school trust in larger classes may result with students' feeling of being "left out". Teachers provide access to institutional resources in institutions and can function as social capital through which information and support can be conveyed to the adolescent (Bourdieu, 1986). The increasing number of students in class may result in more students being left out.

Specifically, with smaller class size, teachers are able to diagnose and track the learning process of the students and respond to their needs. In addition, in a smaller class, students are able to engage themselves in class work. The research also suggests that smaller class sizes can help students develop greater ability to adapt to intellectual and educational challenges (Bedard & Kuhn, 2006). It is believed that positive social relationships that represent socially valued resources and opportunities can be specifically important to adolescents.

According to Gary and Tsui (2015), terms of "more harmonious", "more spirit", "more united' and "more together" were repeatedly used by the students in their interview when describing the small class size. He also stated that small class size facilitates a sense of belonging or community appeared to stem from the student "knowing" their peers much more and from developing closer relationship with one another. Other than that, students also will become more engaged academically and socially when the class size is smaller thus the increase in student engagement in class (Finn *et al.*, 2003). A qualitative study by Moore (2008) reported that teachers made statements about the smaller size of the class increase the space for students to work and allow students to have more turns throughout the day with activities, sharing, asking questions and participating The teacher also noted that, "students have more confidence in my class to participate because of the fewer students; they are less intimidated" (Moore, 2008:30).

LIMITATIONS

The current study has several limitations. Firstly, due to the cross-sectional design, it was not possible to determine the possibility of reverse causation of smaller class size and social capital. Secondly, using a subjective measure of class size and social capital has relevance. So there is a possibility of common method pre-conception that might influence the overall result. Thirdly, the possibility of the measurement error for vertical social capital may occur as the students participated in this survey research in the presence of their teacher in class. Teacher-student interpersonal trust may affect the answers chosen by the students. Fourthly, the questionnaire used did not undergo a pilot study where its validity and reliability could be established. In addition, the number of questions asked in the questionnaire is limited, which may not fully magnify the different sectors of the study. Finally, it was not possible to fully explain the effects of neighbour social capital in this study due to the limited information provided about the class size and neighbourhood.

PRACTICAL APPLICATION

Isolating the causal impact of policies, such as class size reduction is critical, but challenging, for researchers. Many policy makers and political commentators suggest that funding is not the problem in education. They point to the argument that money spent on reducing class sizes does not lead to significantly increased academic results that are indicative of the money being spent. However, in terms of health outcomes, the research is less clear. A paper published in the 2007 by Muennig and Woolf (2007), concluded that reduced class sizes in US schools, particularly in earlier grades, correlate with health-care savings and an additional two years of life. The present study is the first known to examine whether relationships between student health and class size may continue to be an important line of inquiry into the secondary years of schooling. Despite the limitations of the data, the findings of this study raise the intriguing question of whether investments in class size reduction have wider implications on the social determinants of health.

CONCLUSIONS

This study showed that smaller class sizes are significantly associated with higher family social capital, informal social control, vertical school trust, horizontal school trust and reciprocity at school. Other than that, more studies exploring social capital in relation to class size should be conducted especially in different cultures that may influence other social environments and values. The results of this study can be applied in all learning sectors that involve a student and teacher paradigm, such as tuition centres or even external co-curricular activities. Schools, clubs and teaching centres may apply the results of this study to provide the best learning atmosphere for all students based on the class size such as student participation to optimise their learning outcome.

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