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Abstract

The paper investigates the impact of social capital on the health and health behaviour of children in the process of growing up. Therefore, the panel design employed includes 10 to 12-year-old school children, followed up for three annual waves. The data used is from the German survey of Health Behaviour and Injuries in School-Age – A Panel Study 2013-2020 (N ≈ 10.000 per wave). We take a longitudinal perspective to estimate the impact of changes in the volume of social capital on health-related variables. In this study, fixed effects models are used for longitudinal data. The findings show that an intrapersonal change in social capital over time has a significant effect on the health and health behaviour of an individual. This suggests that for the health development of (poor) children and adolescents, it is of foremost importance to build and stimulate social networks and resources (social capital) rather than concentrating solely on financial aid.

Keywords

Social capital, Children, Health and Panel data

1 Introduction

In an international comparison (between countries) or an analysis of distinguished groups within a given society (within differences), the well-being of populations is high on scientific as well as public awareness (UN 2016). Health and health behaviour are the key indicators of a good and satisfying well-being (Veenhoven 2008). How do we accomplish good health and well-being for all groups of people? It is questionable if it is income or wealth alone. International rankings show that not all wealthy and advanced countries rank at the top of the global league table of happiness (World Happiness Report 2017). Very often the Scandinavian countries, the Netherlands or Iceland rank first in this category. These countries show not only a comparatively high level of wealth, but also a high level of life expectancy, low corruption and a sense of belonging together, which in turn delivers trust and solidarity. Probably, the degree of inner cohesion and connectedness is also important in this context. Social Capital is the concept which addresses this cohesion. It has been widely used in almost all fields of social research in the recent years (Halpern 2005; Field 2017). In this study, we would like to focus on the impact of social capital on children's health and health behaviour with special attention to the health development in the process of growing up. Therefore, we use a panel design of 10 to 12-year-old school-children, followed up for three annual waves so far.

In the recent years, many studies have pointed out the close relationship between the family background and health behaviour of children. Most often, attention is drawn to the link between family poverty and health behaviour of children (UNICEF 2016). However, in multivariate analyses, a direct connection between family poverty and the concrete behavioural pattern in young people is often not found; instead there are intermediate factors at play here. These mediators are captured with the concepts of risk and protective factors at a young age. Different factors can be delineated here, which are based on the individual (intelligence, self-esteem), the family (family constellation, socio-economic status of the family), the interactive (friends, peer group) or the social (neighbourhood, local commune) circle. The impact of these factors on children's behaviour is one of the top contemporary research questions and is increasingly being discussed under the term 'social capital'. It has been shown in various studies that social capital has a protective effect on the lives of young people (Furstenberg et al. 1999; Halpern 2005; Putnam 2015). The elements of social capital have a positive effect on mental health (Currie et al. 2012), and it is also true for physical health. Halpern (2005: 87) concludes the review of literature as follows: 'Close personal relationships, and intimate, confiding relationships in particular, generally have highly positive impacts on individual mental health, happiness and physical health'. The investigation undertaken in this study pertains to the question whether social capital affects the health behaviour and the health status of young people over time.

This study is categorised as follows. First, the theoretical concept of social capital and how it applies to children and adolescents is presented (2). Then, it follows the description of the data base (3). After that, the key variables and an index of social capital in youth is introduced. This is followed by a section of findings that (5) consists of the following: (i) an analysis of socioeconomic factors which have an influence on the volume of social capital will be presented; (ii) the impact of social capital on health and health behaviour in young people will be determined; and (iii) the significance of social capital over time (panel) is analysed. In the final section, we discuss these findings (6) and point out any limitations of the study (7).

2 The Theoretical Concept of Social Capital and How It Can Be Adapted for Application to Young People

The concept of social capital came to prominence through the work of Putnam (1995, 2000) and was first understood primarily in the field of political science with regard to shared values and local networks. It was only later that the reference to Bourdieu (1983) was 'rediscovered' and the concept was located at the individual level. Today, there are different understandings of what social capital is (Halpern 2005). Halpern sees social capital at all the three level of analysis, namely the micro-level (family), the meso-level (neighbourhood) and the macro-level (nation). Indeed, the frequent use of the concept in urban and poverty research is a sign of its accuracy on the micro- and meso-level. On the macro-level, the differences between countries in terms of well-being can be seen as an example. The distinguishing feature of social capital is the focus on the relationships among individuals (Lin 2001). Unlike human capital, which focuses on the abilities of the individual, and economic capital, which measures possession, social capital addresses networks and ties, into which individuals are woven in. Being a member of a network gives you an advantage. You gain information, support, access and trust. Through these aspects, social capital can improve one's life satisfaction and well-being. Within these relations, three forms of functioning of social capital can be distinguished (Putnam 2000: 22f.), and they are as follows:

Bonding: Strong direct links between people in a similar sociodemographic and socio-economic or sociocultural environments.

Bridging: Comparatively weak horizontal connections between different groups, which originate from a similar social class.

Linking: Vertical links between privileged and less privileged groups.

How can the concept of social capital be adapted for application to children and young adolescents? Regarding the forms of functioning of social capital (above), all the three above-mentioned forms can be adapted for the different age groups of children and adolescents. Family ties and friendships from socially homogenous groups are not unusual in childhood (bonding). However, the fellowships found in associations and organisations (e.g. sport clubs) that bring together young people from somewhat heterogeneous family backgrounds are often found in the youth (bridging). Perhaps the most difficult are the structures of 'linking', since these structures are hard to establish and might even have a marginalising effect on the less advantaged because young people very often decipher different social backgrounds.

However, here we would like to argue for an individualistic approach for adapting social capital in the youth. As Lin (2001) points out, the concept of social capital has its starting point on the micro-level and can be extended to the meso- and macro-level as well (see also Bronfenbrenner 1979). The individualistic approach can be captured with Bourdieu's conception of social capital as follows: 'Social capital is the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalised relationships of mutual acquaintance and recognition' (Bourdieu 1986: 249). In Bourdieu's conception, social capital is only another form of capital in addition to economic and cultural capital (Bourdieu 1986). All three forms of capital are transferable and can be invested and yield 'profit'. They are thus embedded in the structure of social inequality. Social capital can moderate (deteriorate or improve) an individual's position in the societal structure of social inequality. It is a multiplier or when positively applied, it functions as a support network. One's own economic resources or cultural competencies can have a greater effect in life, if the 'lever' of social capital (connectedness, support) can be applied.

With regard to children and adolescents, the role of support is central. The possibility of 'profit maximisation' through co-operation is less relevant in this context. Support can be expected in situations of crisis and can relate to both emotional and material support. However, in normal everyday life also, the disposition of social capital has a stabilising effect on life. In the analysis, this means an extension from the personal (micro-level) to the meso-level, e.g. the neighbourhood or school (Bronfenbrenner 1979). In this regard, Furstenberg et al. (1999) in a study on socialisation conditions in unfavourable neighbourhoods show that the variability of behaviour is essentially related to the volume of social capital (ibid.: 138). As Morrow argues, 'the basic argument, then, is that the extent to which people are embedded within their family relationships, social networks, and communities, and their sense of belonging and civic identity, constitutes 'social capital'. This stock of 'social capital' in turn has an impact on health and well-being.' (Morrow 1999: 768). Runyan et al. (1998) found that social capital acts as a buffer in unfavourable environments. They also showed in the longitudinal data that every element of social capital or the presence of social networks improve the health outcomes of deprived children.

For children and young adolescents especially, social capital can be described as a trust-based network, which can be accessed when social support is needed. This thought goes basically back to the work of Coleman (1990) who defines social capital as that which 'is embodied in the relations among persons' and 'a group whose members manifest trustworthiness and place extensive trust in one another will be able to accomplish much more than a comparable group lacking that trustworthiness and trust' (ibid .: 304).[1] Anthony Giddens defines trust as the 'confidence in the reliability of a person or system, regarding a given set of outcomes or events, where that confidence expresses a faith in the probity or love of another, or in the correctness of abstract principles' (Giddens 1990: 34). Both the above-mentioned quotes underline the importance of the aspect of trust in the relationships between people, which constitutes social capital in general but is in particularly true for children. As children usually cannot easily change their personal circumstances, they have to turn to and trust others (often adult) (Putnam 2015: 219ff.). Some scientists (Woolcock 2001: 10) argue that 'trust is better understood not as social capital per se, but rather as a measure of it. We invest in the networks and social institutions that produce trust, not trust in and of itself'. It is hard to distinguish trust either as a core element of social capital or a pure result of it. If a network or a relation produces trust, it's very likely that we rely on and use this relation because we trust them. So, we would like to regard trust as a core element and function of social capital.

In sum, we expect (hypotheses 1) the children with a high volume of social capital to show better health development – a more favourable health behaviour and a significant better health status. In the process of growing up, children are more and more independent from their parents and family routines and enter youth risk behaviour. Therefore, the effect of social capital should (hypotheses 2) gain (protective) significance as one grows older.

[1] Coleman (1990: 321) also points out that unlike economic capital, the 'use' of social capital strengthens and increases social capital and does not 'consume' it. The more I trust (mutual) other people, the more I increase my social capital. I, thereby, reduce not only control costs, but also create further social capital.

3 The Database

The data base used in this study is the panel study 'Health Behaviour and Injuries during School Age', which started on an annual cycle in the school year 2014–15 in Germany.[2] The study initially surveyed students of the 5th grade (10–12-year-olds), comprising 10,621 pupils from 588 classes of 148 schools.

Sample design

The basic population includes all the pupils who were enrolled in the 5th grade at the general higher secondary education schools for the academic year 2014–15. As there is no list of these individual children, a selection of schools was made. Within the sampled schools, all the 5th grade classes were surveyed for pragmatic reasons (cluster sampling). In order to take into account all the federal states in Germany as well as the state-specific distribution of pupils regarding school streaming[3], a stratified random sample was drawn. The layers in the stratified random sample represent a combination of characteristics such as the federal state, school stream, school size and urbanity. Some layers, especially those belonging to small federal states, received a higher selection probability, resulting in a disproportionate stratified sample. In the subsequent analyses, the employment of a design weight compensates for this. The gross sample for the first survey included 854 schools in the eleven participating federal states.[4] Almost a fifth of the schools contacted (17.3%) participated in the survey (net sample). Compared to the distribution in the sampling frame, the schools that belong to the highest stream are slightly overrepresented, while there are no differences between the net sample and the sampling frame with regard to region, urbanity and school size. Tab1 gives an overview of the structure of the data so far.

	N
Participating only in wave 1	2,624
Participating only in wave 2	1,229
Participating only in wave 3	2,380
Participating in waves 1 and 2	1,994
Participating in waves 1 and 3	740
Participating in waves 2 and 3	1,609
Participating in wave 1, 2 and 3	5,308
Total	15,844

Tab 1: Participation of pupils by waves

[2] The panel study is funded by the „Deutsche Gesetzliche Unfallversicherung" (DGUV).

[3] Secondary schools in Germany (grade 5 to 12) are basically stratified into two different academic categories. The lower stream aims to train young people for vocational education, whereas the upper stream ('Gymnasium') is oriented towards an academic education (to enter Universities).

[4] The survey could not be carried out in the federal states of Hamburg and Bavaria, as the political bodies (ministries) did not give their consent to the study. Nevertheless, 14 out of 16 federal states in Germany are part of the survey. For pragmatic reasons, some of the East-German federal states entered the survey just in the wave three of 2016–17. This is due to the fact that in these federal states the primary school lasts for six instead of four years.

Data collection and questionnaire content

The pupils were interviewed within a period of 45 minutes by means of a questionnaire on a tablet PC (offline classroom survey). In all the classes, a trained interviewer was present to introduce the questionnaire to explain the working of the tablet PC and to respond to questions. In the first part of the questionnaire, the children were interviewed about injuries in depth. Subsequently, the children's exercise routine and nutritional behaviour as well as their physical and mental health was assessed. In addition to the sociodemographic data, information about the context of the school was also collected such as the information on the perceived state of the school building. Finally, the data set was enriched with further structural features of the participating schools (school stream, federal state).

4 Variables and Data Analysis

4.1 Independent Variables

Measuring the social capital in children during childhood

As argued earlier, trust is a key category of social capital. In childhood and adolescence, one (hopefully) gains trust and support from one's parents. Hence, the quality of the parent-child relationship is of great importance. The second component that plays a pivotal role in child development is the school, as it is the institution where young people spend the most time of their day and experience important socialisation impulses. Therefore, the quality of schools is addressed. With regard to schools, the quality of the relationships one develops with other pupils (mutual trust) is important, and the school regulations or settings are not so relevant. A third component of trust is the quality of the immediate neighbourhood, as it concerns security or strangeness.[5]

The scale indicators for all these three components were selected to achieve a sufficiently high degree of reliability (Cronbach's Alpha), while confining the number of items in order to be well applicable in practical social research. The values of the indicators were transformed so that the higher values reflect a high volume of social capital for the respective items/components. The sum of the values for each component range from 0 to 1. After that, the sum of these components was calculated, resulting in an index of the total volume of social capital. For ease of interpretation, this index was finally transformed to range from 0 to 100. Relying on that construction, the values for the index were calculated for every pupil and for all the three waves. In Table 2, an overview of the index is presented.

[5] It is certainly possible to identify the other areas of life (for example, sport/leisure activities etc.), which may be of concern here. In a certain way, the conceptual framework could be sprawled.

Indicator	Scaling[6]
How easy is it for you to talk to the following persons about things that really bother you?	
Father or Stepfather (if father is not present at home)	very easy (0,5); easy (0,375); difficult (0,25); very difficult (0,125); don't have or see this person (0)
Mother or Stepmother (if mother is not present at home)	very easy (0,5); easy (0,375); difficult (0,25); very difficult (0,125); don't have or see this person (0)
Here are statements about students at your school. Please tick to what extent you agree or disagree with the statements	
Most students in my class like being together	exactly true (0,33); is quite right (0,25); neither / nor (0,17); is not true (0,08); is not at all true (0)
Most of the students in my class are kind and helpful	exactly true (0,33); is quite right (0,25); neither / nor (0,17); is not true (0,08); is not at all true (0)
The other students accept me as I am	exactly true (0,33); is quite right (0,25); neither / nor (0,17); is not true (0,08); is not at all true (0)
Here are statements about your Neighbourhood. Please tick to what extent you agree or disagree with the statements	
People greet each other and speak to each other	exactly true (0,33); is quite right (0,25); neither / nor (0,17); is not true (0,08); is not at all true (0)
Younger children can play outside during the day	exactly true (0,33); is quite right (0,25); neither / nor (0,17); is not true (0,08); is not at all true (0)
One can trust people	exactly true (0,33); is quite right (0,25); neither / nor (0,17); is not true (0,08); is not at all true (0)

Tab 2: Indicators of the Social Capital Index

The parent-child relation forms the first component of social capital. In the questionnaire, the children were given the option to indicate how easy or difficult it is for them to deal with personal matters with trustworthy individuals. In this study, only the categories of father and mother are considered, as the consideration of other categories such as 'friends' and 'other

[6] The numbers in the brackets refer to the scores we ascribed for the answering options in order to obtain a range from 0 to 1 for the each component of social capital.

people' did not improve the scale.[7] The answer category 'don't have or see this person' has been added to the lowest category because we cannot expect any support if they are not present. The two indicators together have the values for Cronbach's Alphas between 0.56 and 0.59 (depending on the wave), which is almost acceptable given that the scale only consists of two items.

The perception of the school climate recurs on three single items, which represent the social relations between pupils. The three school indicators show a range of Cronbach's Alpha between 0.67 and 0.73, which cannot be significantly improved even if further items are included. The assessment of the quality of the neighbourhood also consists of three indicators. These indicators have reliability values ranging from 0.69 to 0.75 in the three waves. The Cronbach's alpha for the aggregate index of social capital ranges from 0.68 (wave 1) to 0.70 (wave 3). Thus, the index seems applicable for further analyses.

Over the three waves, the social capital index has a normal distribution with its mean and mode at 75 points and a slightly higher median (76).

The Family Affluence Scale

If the social inequality or the social position of school children is to be captured, this can only be done with a proxy measurement, where the social position of the parents is considered. Since the parents were not interviewed in this survey and questioning the children in this age-group about the income situation of their parents usually does not produce reliable results, the measurement of the social position is carried out with comparatively simple but robust indicators: The Family Affluence Scale (FAS) items developed by the international HBSC study group (Currie et al. 2012) are basically employed for this purpose. The index used here consists of the three original FAS items and an additional question tapping the number of books in the household (see Tab 3). In addition to the more 'materialistically' oriented items, the number of books in a household may also serve as a proxy indicating the formal education of the parents.

Indicator	Scaling
Does your family own a car?	no (0) yes, one (0.125) yes, two or more (0.25)
During the past 12 months, how many times did you travel on holiday with your family?	not at all (0) once (0.08) twice (0.17) more than twice (0.25)

[7] If no biological father or mother were present, the information stepfather or stepmother was imputed if applicable.

Do you have a bedroom for yourself?	no (0) yes (0.25)
How many books do you have at home? Please do not include magazines, newspapers or textbooks!	None or very few (0-10 books) (0) About a bookshelf (11-25 books) (0.06) About a shelf (26-100 books) (0.13) About two shelves (101-200 books) (0.19) Three or more shelves (more than 200 books) (0.25)

Tab 3: The Family Affluence Scale (FAS)

All the four items used to measure family affluence were recorded in the range from 0 to 0.25, with higher values indicating higher affluence. Afterwards, the values of these items were summed up, and the final index was recoded to range from 0 to 100.

Further Independent Variables

Since in this study, we are interested in the distribution of social capital within sociodemographic groups, we included the factors of gender, migration (both parents were born in Germany vs. at least one parent was not), region (west vs. east) and the type of school attended (high, intermediate and low).

4.2 Dependent Variables

We confine ourselves to six health-related variables that cover the general health status, mental health and health behaviour. For measuring health status of the pupils, the pupils self-assessed their general health status on a five-point-scale ranging from 'very poor', 'poor', 'fair', 'good' to 'excellent'. Furthermore, we asked the pupils how often in the last week (a) they had difficulties in getting to sleep, (b) they could not concentrate well and (c) they felt fit and comfortable, using a five-point scale ranging from 'not at all', 'one day per week', '2-4 days per week', '5-6 days per week' to 'every day'. Finally, we asked how often during the week before the interview the pupils drank 'Coke or lemonade', and how often they ate 'lettuce and salad' using the same five-point-scale as stated before. For the ease of interpretation, we treated all these variables as a metric and recoded them to range from 0 to 4 for the variables comprising general health status and from 0 to 7 for mental health and health behaviour.[8] We simultaneously ran fixed effects logit models to ensure our results.[9]

[8] not at all=0; one day per week=1; 2-4 days per week=3; 5-6 days per week=5.5; every day=7

[9] As far as we know, the fixed effects ordered logit models (which were adequate for our response categories) are not yet supported by Stata.

4.3 Strategy of Analysis

The analysis is based on the panel data from all the three waves of the survey, which makes the panel strongly balanced.

The analysis consists of the following three parts: First, we take a closer look at the distribution of the volume of the children's social capital and its components over time. Second, we shift the focus to the distribution of social capital and its components in distinguished socioeconomic groups, taking up a cross-sectional perspective. In the third and the central part of our analysis, we first retain a cross-sectional perspective in order to estimate the (controlled) influence of social capital on the dependent variables. After that, we take a longitudinal perspective to estimate the impact of the changes in the volume of social capital and family affluence on health-related variables. Here, we run fixed effects models for longitudinal data. This approach is the most suited for testing causal relationships using non-experimental data, although the causal effects could not be established even with this procedure.

5. Findings

In table 4, the wave-specific means and standard deviations of the overall volume of social capital and its components for all the pupils without the missing values over all the three waves and for all the three components (n=4,164) are displayed. The overall volume of social capital as well as the scores for its components are standardised on a range from 0 to 100. Here we find a clear picture indicating that the social capital is declining, while children grow up. Moreover, the t-tests for dependent samples reveal that this reduction is statistically significant ($p<0.001$, two-tailed test). This decrease is mainly due to the pupils reporting a more critical relationship to their parents, which is not uncommon during puberty. Although the relationships with classmates and the trust in the neighbourhood are also declining significantly, this reduction is less remarkable and, in most of the cases, only significant at $p<0.05$.

	Wave 1	**Wave 2**	**Wave 3**
Overall Volume: Social Capital	78,6 (12,6)	75,7 (13,2)	73,8 (13,8)
Component 1: Relation to Parents	83,2 (16,7)	78,4 (18,0)	75,6 (18,7)
Component 2: Relation to Classmates	74,1 (18,0)	71,5 (18,5)	70,5 (19,1)
Component 3: Trust in Neighborhood	78,5 (19,6)	77,2 (19,6)	75,3 (20,5)

Tab 4: Distribution of social capital and its components over time (n=4,164)

Table 5 shows the mean values for the total volume of social capital and the three components of the sociodemographic groups. Although there are some statistically significant differences (displayed in italics, $p<0.05$), the social capital is distributed rather evenly within these groups. The only differences that persist over time are that of the higher volume of social capital in children living in the western part of Germany and in economically advantaged households (FAS). In all the domains of social capital, the children scored more or less the same, regardless of the factors of migration or gender. In sum, the possession of social capital seems to be independent from the standard variables of sociodemographic relying on a comparison of group-specific means.

		Social Capital			**Parents**			**Classmates**			**Neighborhood**		
		W1	**W2**	**W3**	**W1**	**W2**	**W3**	**W1**	**W2**	**W3**	**W1**	**W2**	**W3**
Gender	*male*	78	76	*75*	*85*	*81*	*79*	*72*	*70*	70	79	*77*	*76*
	female	79	75	*73*	*82*	*76*	*73*	*76*	*73*	71	78	*77*	*75*
Family affluence	*< p(50)*	*77*	*73*	*72*	*82*	*76*	*74*	*73*	*70*	*70*	*77*	*74*	*72*
	>= p(50)	*80*	*79*	*76*	*85*	*80*	*77*	*75*	*73*	*72*	*81*	*80*	*78*
Migration	*yes*	*78*	*75*	*72*	82	78	75	74	71	*69*	*77*	*75*	*71*
	no	*79*	*76*	*75*	83	78	76	74	72	*71*	*79*	*78*	*77*
Type of School	*high*	*79*	*76*	*75*	84	79	*76*	*75*	*72*	*72*	*79*	78	*76*
	intermediate	*78*	*75*	*72*	82	78	*73*	*73*	*71*	*68*	*78*	*77*	*75*
	low	*76*	*74*	*72*	83	78	*76*	*70*	*68*	*67*	*77*	76	*74*
Region	*west*	*79*	*76*	*74*	83	*79*	*76*	*74*	*72*	70	*79*	*78*	*76*
	east	*77*	*72*	*72*	83	*77*	*73*	*72*	*68*	70	*77*	*73*	*73*

Tab 5: Distribution of social capital and its components over time and between sociodemographic groups

The next section aims to estimate the effects of the within-pupil variation of social capital on their perceived health status and reported health behaviour. For that purpose, we ran a series of fixed effects models, as they are adequate to uncover the influence of variables that change within individuals over time (Tab. 6).

Although, on an aggregate level, social capital seems to be rather stable (even within certain sociodemographic groups), its variability in children over time is quite impressive. The proportion of the common variance of social capital measured in wave 1 and 2 does not exceed 30% and only rises to 36% in waves 2 and 3. The respective values for the family

affluence scale are 53% (wave 1 and 2) and 59% (wave 2 and 3). This result not only indicates the character of social capital to be dynamic and adaptive, but also makes it appropriate for estimating its influence based on the fixed effects models.

	Social Capital			**Family Affluence**			**Constant**	
	b	**se**	**p**	**b**	**Se**	**P**	**b**	**se**
Health Status	.083	(.010)	***	.017	(.011)		2.38	(.097)
Sleep difficulties	-.143	(.032)	***	-.024	(.032)		2.74	(.269)
Could not concentrate well	-.213	(.022)	***	.028	(.024)		2.53	(.214)
Feeling fit and comfortable	.373	(.027)	***	-.012	(.035)		2.05	(.290)
Consumption of Coke and Lemonade	-.098	(.020)	***	-.011	(.023)		1.98	(.194)
Consumption of Lettuce and Salad	.145	(.024)	***	.159	(.035)	***	2.21	(.267)

Tab 6: Fixed effects models for estimating the effect of varying social capital and FAS on various health-related variables (reversely coded variables in italics); *** p<.001; ** p<.01; * p<.05

For the models above, the variables representing the total amount of social capital and the family affluence were recorded so that a one-unit change in X represents a ten-percentage point increase of these variables. In table 6, the effects of these changes are displayed for six health-related variables. It is recognisable that an increase in the amount of social capital improves the general health status, mental health and health behaviour in a statistically significant way. Moreover, the effects are quite remarkable; for instance, a ten-percentage point increase in social capital leads to an increase of almost 0.4 days per week when the pupils feel fit and comfortable. On the other hand, concentration problems reduce by about 0.2 days per week when social capital increases by ten percentage points. However, a ten-percentage point increase on the family affluence scale only favours the variable of consumption of lettuce and salad, but has no effect on the other variables.

6. Discussion

This study indicates that social capital is a powerful tool in the analysis of health and health behaviour in childhood. This is especially true when young people are studied in the process of growing up. The findings of the study demonstrate that an intrapersonal change in social capital over time has a significant effect on the health and health behaviour of an individual. Hence, it can be interpreted as a causal factor affecting health development in young age. This is true as the fixed effects models ‘fix’ all the individual invariant characteristics (i.e. age, sex), so the observed change in the outcome-variable can be assigned to the change in the central independent variable. This is what we wanted to analyse in this study. Despite the numerous cross-sectional studies concerning the effectiveness of social capital, the

longitudinal panel data is quite rare. Runyan et al. (1998) found that in longitudinal data, social capital improved the health outcomes of deprived children, but this finding was from a small sample of 4 to 8-year-old children in deprived settings. The research study teams of Snelgrove, Pikhart& Stafford (2009) and Sessions, Yu & Wall (2011) as well as other teams confirm a positive effect of social capital on health in adults, analysing the British Household. Islam et al. (2006) concluded from a review of literature that an association between the social capital and health at the individual (adult) level is robust with respect to the degree of egalitarianism in a country. With regard to children, longitudinal data is still rare (Halpern 2005). Here we would like to see our findings.

The concept of social capital itself is largely independent of the sociodemographic features such as SES (FAS here), migration, gender or region. This is an important quality and underpins the independence of the concept. It is not just a proxy for something else, but has the power to in its own right. This establishes its role as a sociological concept and is also applicable to younger age groups. Social capital on the individual, as conceptionalised here, did work as an empirical tool and in a longitudinal design. This strengthens the theoretical conception of social capital as an individualistic concept, as it was put forward by Lin (2001) as well as Coleman (1990) and Bourdieu (1986). From our initial hypothesis, we have a mixed result. Hypotheses 1, in which we state a significant effect of social capital on health and health behaviour in young people, is supported. This is especially true, as we found an effect over time. The second hypothesis that the effect of social capital will strengthen as the children grow up could not be verified. However, in order to transform the empirical facts into political consequences, we would like to argue that for the health development of children and adolescents, it is of foremost importance to build and stimulate social networks and resources (social capital), rather than concentrating solely on financial aid.

7. Limitations

There are a number of limitations for the analyses undertaken in this study. The concept of social capital itself can be questioned. There are other domains, which can be regarded as constitutive for the concept. However, surveying a number of domains is impractical in school-based surveys. We rely on self-reported dependent variables, which might have a response bias. Class-based surveys are also prone to influence from others. Furthermore, the findings might be limited as the children were surveyed on an annual basis, and there is a possibility of missing the changes in social capital or health during comparably long survey intervals. There is also quite a lot of missing data due to panel attrition and missing linkage of cases.

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