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Young people’s well-being and the association with social capital, i.e. social networks, trust and reciprocity

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Abstract:	The paper explores the association between the social capital of young people at 12-13 years and their subjective well-being using Finland’s sub-sample of the third wave of the International Survey of Children’s Well-Being. Despite many previous studies on this topic, relatively little is known of the actual effect of social capital given that different studies define and measure social capital differently. We rely strictly on Robert Putnam’s theory and understand it as a combination of social networks, trust, and norms of reciprocity. We measure well-being with two context-free scales: a one-dimensional overall life satisfaction scale and a five-dimensional Student’s life satisfaction scale. The analysis is done with linear and unconditional quantile regression. The results indicate that all three dimensions of social capital are significantly associated with well-being. Of the three, trust is the strongest predictor explaining over 30% of the variance in both well-being scales. Quantile regression suggests that while social capital is important for young people across the quantiles, trustful relations with family members are particularly important for those who fare poorly otherwise. For those who are satisfied with their lives, the importance of family members is lower, albeit still significant, but for them relationships with other people gain greater importance.

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Minna Tuominen: main author writing the manuscript, in charge of the analysis and interpretation of the results.

Leena Haanpää: In charge of the data gathering in Finland; co-author directly contributing to the chapters of previous research, and data and methods; also, contributing to the interpretation of the results and commenting every version of the manuscript.

Availability of data and material

The data on the third wave of the International Survey of Children's Well-Being will become openly accessible in June 2021. The first two waves of the survey are freely accessible at www.isciweb.org

Code availability: Stata 16.0, SPSS 25

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Young people's well-being and the association with social capital, i.e. social networks, trust and reciprocity

Abstract

The paper explores the association between the social capital of young people at 12-13 years and their subjective well-being using Finland's sub-sample of the third wave of the International Survey of Children's Well-Being. Despite many previous studies on this topic, relatively little is known of the actual effect of social capital given that different studies define and measure social capital differently. We rely strictly on Robert Putnam's theory and understand it as a combination of social networks, trust, and norms of reciprocity. We measure well-being with two context-free scales: a one-dimensional overall life satisfaction scale and a five-dimensional Student's life satisfaction scale. The analysis is done with linear and unconditional quantile regression. The results indicate that all three dimensions of social capital are significantly associated with well-being. Of the three, trust is the strongest predictor explaining over 30% of the variance in both well-being scales. Quantile regression suggests that while social capital is important for young people across the quantiles, trustful relations with family members are particularly important for those who fare poorly otherwise. For those who are satisfied with their lives, the importance of family members is lower, albeit still significant, but for them relationships with other people gain greater importance.

Keywords: well-being, social capital, social networks, reciprocity, trust, young people

1 Introduction

It is during our adolescent years that we consolidate our social selves (Coleman, John C. and Hendry 1999). During this period, interest in other people increases, and friendship and peer relationships in general gain greater importance. (Choudhury, Blakemore, and Charman 2006)

In this paper, we explore how important not only social relationships but social capital, in general, is for the well-being of young people at 12-13 years of age. Social capital has stimulated a considerable amount of research and it has been associated with many positive outcomes, including better school performance (Lindfors, Minkkinen, Rimpelä & Hotulainen, 2018), pro-social behaviour (Jenkins &Fredrick, 2017), and also well-being (Addae 2020; Bae 2019; Ko and Kuo 2009; Lau and Li 2011; Laurence 2019; Yoo 2019; Morgan, Rivera, Moreno, and Haglund 2012; Geraee, Eslami, and Soltani 2019). Although most of the researchers have found a positive relationship between social capital and well-being, the evidence is fragmented as most of the studies have interpreted social capital narrowly, often equalling it to mere social relationships.

To our knowledge, no previous research has looked at the association of young people's well-being with social capital applying systematically one of the dominant social capital theories. We adopt Robert Putnam's theoretical framework and define social capital as a combination of (i) social relations, (ii) trust in other people, and (iii) norms of reciprocity (Putnam 2000). In this view, a person is well-off in terms of social capital if she/he sustains good relationships with family, friends, and acquaintance; considers other people generally trustworthy; and easily provides help to others and receives help from them.

Our study is inspired by Tamar Dinisman and Asher Ben-Arieh's paper from 2016 (henceforth DBA), which explores the characteristics of well-being among young people across 14 countries. They explain up to 11–20% of the variance in well-being with age, gender, country of living, and access to specific material goods. We build on their results by adding social capital to the model. The available dataset that allows us to do so comes from Finland, which is an interesting case as both young and adult Finns have repeatedly reached some of the worlds' top well-being/happiness scores (e.g. Helliwell, Huang, Wang & Norton 2020; Rees 2017; Ottova-Jordan, Gobina, and Mazur 2016).[1] The use of a one-country sample alone restricts our possibilities of drawing conclusions at a more global level, but the absence of comparative international data on young people's social capital leaves us with few options.

With the present paper, we want to contribute towards greater clarification of the concept and measurement of social capital and at the same time further elucidate the relationship between social capital and well-being. We start by reviewing the three dominant schools of social capital and assess their differences and comparative strengths. We then go through earlier literature to verify how social capital has been operationalized in connection to young people's well-being. Thereafter, we present our study as an example of measuring social capital as a comprehensive asset of young people.

[1] Research on happiness or life satisfaction are often taken as synonyms to well-being and are used interchangeably as outcome indicators in well-being-related research. (See e.g. Helliwell and Putnam 2004; Campbell, Converse, and Rodgers 1976).

2 Theories of social capital

Each of the three founding fathers of social capital – Pierre Bourdieu, James Coleman, and Robert Putnam – formulated a distinct definition for it, which partly overlap, but which also bear important differences. Here, we go briefly through the three definitions in part to point out some often-repeated misunderstandings, and in part to justify our choice adopted in the present paper.

2.1 Social capital in Bourdieu's perspective

Bourdieu was the first one of the three to write about social capital. Strongly influenced by Marxist theory, he defined social capital in somewhat utilitarian terms as being the sum of actual or potential resources that one can accrue through his/her friends and acquaintances (Bourdieu 1986). Bourdieu furthermore established that the volume of one's social capital "depends on the size of the network of connections he can effectively mobilize and on the volume of capital (economic, cultural or symbolic) possessed in his own right by each of those to whom he is connected" (Bourdieu 1986).

In Bourdieu's perspective, networks are established and maintained through chains of exchange of gifts, favours, material resources, etc.[2] Exchange is the essential element that ties people together. "Exchange transforms the things exchanged into signs of recognition, and through the mutual recognition and recognition of group membership which it implies, re-produces the group" (Bourdieu 1986). To summarise, for Bourdieu, social capital is an individual resource that consists of two inseparable dimensions: social networks and exchange; the latter is what builds and sustains the former.

2.2 Social capital in Coleman's perspective

Shortly after Bourdieu published his first article about social (and other forms of) capital, Coleman and Hoffer introduced another version of social capital while researching high school students' educational achievement and school dropout rate. They noticed that the dropout rate was significantly lower in Catholic schools than in other types of schools and concluded that the closely bound religious community formed a protective resource, social capital (Coleman, James S. and Hoffer 1987).

For Coleman and Hoffer, social capital is essentially about a network of relationships, and the structure of the network is critical for the amount of social capital it can include. They call for "a closure" a structure where network members know and interact with each other (Coleman 1988; Coleman and Hoffer 1987). The strongest form of a closure, where older and younger generations share the same values, norms, and sanctions, is what Coleman and Hoffer consider a "functional community" (Coleman and Hoffer 1987).

Coleman never specified a clear-cut definition of social capital. Instead, he identified several different expressions of it, including social norms and sanctions, obligations and expectations, trust, and information channels (Coleman and

[2] In fact, this perspective is very reminiscent of Marcel Mauss' earlier work done in Polynesia where he noted that every gift or favour placed an expectation of some form of return (Mauss 1990).

Hoffer 1987; Coleman 1988). Social norms refer to shared regulations that can, for example, be enacted as a national law or endorsed by a group of parents imposing specific rules on their offspring (Coleman 1988).

According to Coleman, obligations and expectations are formed between individuals when one person does a favour of some kind to another person (Coleman 1988). This institutes an obligation, an outstanding "credit slip" that that person placing the initial favour can expect to collect at a given moment. The idea is similar to Bourdieu's chains of exchange. Coleman stresses that obligations and expectations entail trust between people without which there would hardly be any initial gesture of kindness. Trustworthiness means that obligations will be repaid. (Coleman 1988).

In Coleman's view, social capital can also take the form of an information channel (Coleman 1988). One example of this is parents teaching their children about a given school subject. This is how social capital can generate human capital as the title of Coleman's famous paper describes.

Coleman distinguishes three different contexts where young people's social capital resides. Family level social capital is revealed in the presence of parents at home and in parental interest in their children's lives. School-level social capital arises through the relationships between the students, but also between students and teachers. Community-level social capital depends on the structure, or the degree of closure that the community members form. The closure provides a protected setting for making favours that can be expected to be returned, and where common rules and norms can easily be discussed and agreed upon. The closed structure of the network also ensures a quick and unimpeded flow of information between the network members. (Coleman 1988; Coleman and Hoffer 1987).

In contrast to Bourdieu, Coleman understands social capital as an inherently collective resource that can only exist in relationships between people (Coleman 1988). His ultimate interest was on educational achievement and he saw social capital as a functional resource of the family and community that could boost young people's school performance.

Although, appealing particularly for researchers focusing on young people, Coleman's version of social capital is challenging mainly for being so loosely formulated. Moreover, this version of social capital largely overlooks young people's own investment in building social capital. For Coleman, social capital is essentially an outcome of social structures, not so much of individual behaviour.

2.3 Social capital in Putnam's perspective

Putnam was the last one of the three scholars to launch his version of social capital. He is much indebted to Coleman for his work, and probably also to Bourdieu, although Putnam hardly ever refers to him. In "Bowling Alone - The collapse and revival of American community" Putnam presented what one could call the most mature definition of social capital, thus far. According to him, "social capital refers to connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them" (Putnam 2000). Many researchers associate overall social norms with Putnam's theory (e.g. Rodríguez-Pose and von Berlepsch 2014; Bjørnskov 2006), and it is true that in his earlier work (1993), Putnam was less clear about what types of norms he was talking about, but in his later publication (2000), Putnam explicitly limits the definition to norms *of reciprocity*. Conversely, *social* norms relate to Coleman's theory.

Putnam's interest in social capital grew through his work in Italy where he studied civic engagement. He came to differentiate between formal civic engagement in organised social networks and informal social engagement in family

and friendship networks. By the same token, Putnam differentiates bonding and bridging social capital. Bonding social capital consists of "inward-looking" relationships that bolster group identity of homogenous groups. Bonding networks are typically a source of social and psychological support, mutual reciprocity and solidarity. Bridging social capital, on the other hand, entails "outward-looking" and consists of relationships with people with more diverse backgrounds. Bridging social capital has been found critical for the exchange of strategic information, for example about job markets. (Putnam 2000).

Similar to Bourdieu's exchange and Coleman's obligations and expectations, in Putnam's framework, social networks almost inevitably entail reciprocity**.** Putnam distinguishes specific reciprocity from a more generalised one. Specific reciprocity is about two-way interaction, where a favour done to a friend evokes an expectation that the same friend returns the favour at some point. Generalised reciprocity is about helping a person without expecting anything directly in return while trusting that there will always be people to help out when one needs it. Recurrent contacts with a large number of people with diverse backgrounds tend to boost generalised reciprocity, and as an outcome, society becomes more efficient and trustworthy. On the other hand, it may also happen that mutual trust and specific reciprocity between members of a given group build into a destructive alliance, a violent gang, or similar. Recognising this, Putnam called for more studies on the positive outcomes of social capital (Putnam 2000).

Trust, the last element of Putnam's three-dimensional social capital, has probably been the most popular object in social capital research among adults. Similar to the first two dimensions, also in trust Putnam differentiates the type of trust that grows from strong and frequent social relations – thick trust – from a thinner type of trust in other people in general. Thick trust is a necessary building block for bonding social capital, while thin trust contributes to overall law-abiding conduct, active citizenship and participation in diverse forms of formal networks. (Putnam 2000).

Putnam's conceptualisation is often interpreted as an account of collective form of social capital (e.g. Siisiäinen 2003). Indeed, in his earlier work where he compared civic engagement in Northern and Southern Italy, Putnam explicitly claimed: "One special feature of social capital […] is that it is ordinarily a public good, unlike conventional capital, which is ordinarily a private good" (Putnam, Leonardi, and Nanetti 1993). Yet, in "Bowling Alone" Putnam revised this view: "Social capital has both an individual and a collective aspect […] Social capital can thus be simultaneously a ´private good´ and a ´public good´" (Putnam 2000). This leaves no doubt that Putnam also recognises social capital as an individual asset.

Putnam is mainly interested in the positive outcomes of social capital. In his perspective, social relationships with family, friends, partners, acquaintances, etc. can spawn direct benefits, such as stronger feeling of self-worth and a greater sense of happiness (Putnam 2000). Alike Coleman, Putnam also recognises that young people flourish in an environment where people trust each other and frequently interact with each other. Putnam argues that community-level social capital strongly correlates with students' scores on standardised tests just as well as it contributes to a lower school dropout rate and a lower level of involvement in serious crimes. He also notes that while children-at-risk are likely to experience deficiencies in social capital, they are also likely to experience the greatest gains if their social capital can be increased. (Putnam 2000).

In summary, we see many similarities between the three scholars, and we disagree with the researchers who argue that Bourdieu´s social capital is in opposition to that of Putnam (Siisiäinen 2003). Rather, we see Putnam's concept as an

expansion of that of Bourdieu. In our view, Putnam borrowed elements from both Bourdieu and Coleman to formulate the most comprehensive and yet most specific definition of social capital. Therefore, we adopt this version in our study.

3 Previous research on social capital and subjective well-being among young people

In 2006, Kristin Ferguson conducted a systematic review of the studies on family or community social capital and their effects on young people's well-being. She observed that the studies lacked systematic indicators to operationalise the concept of social capital (Ferguson 2006). The focus on family and community social capital geared Ferguson's attention towards studies that followed Colemanian theoretical framework. The reviewed studies had operationalised family social capital through indicators related to family structure, the quality of parent-child relationships, the adult's interest in the child, the parents' monitoring of the child's activities and the extended family's exchange and support. Community social capital had been operationalised through social support networks, civic engagement in local institutions, trust and safety in the neighbourhood, degree of religiosity, and quality of school and neighbourhood. Practically, all the studies reviewed by Ferguson indicated a positive relationship between social capital and well-being. (Ferguson 2006).

Most of the studies in Ferguson's review relied on data collected from adult respondents; in them, social capital was seen as something that either the parents or surrounding adults had/had not and that through them was reflected onto their children (Furstenberg and Hughes 1995; Maccoby, Johnson, and Church 1958; Runyan et al. 1998; Stevenson 1998; Garbarino and Sherman 1980; Sampson, Morenoff, and Earls 1999). Moreover, in the reviewed studies, well-being was understood broadly to refer to anything between successful physical and behavioural development to lower levels of violent acts in youth, higher levels of psychological adjustment, and better academic performance.

Our interest resides in the social capital held by young people themselves and how it relates to their subjective well-being. We understand subjective well-being as perceptions, evaluations, and aspirations of people on their lives (Campbell, Converse, and Rodgers 1976). As opposed to more objective measures, subjective well-being is characterised by: (a) being grounded in each person's perceptions and evaluation of his or her experiences; (b) it includes positive measures and not only the absence of negative ones; (c) it includes an overall evaluation of life, usually of ''life satisfaction'' (Diener 1984).

We have identified eight studies that share with us the same research interest in the association between young people's social capital and their subjective well-being. Many of them actually assess a more complex mechanism where social capital is only one of the potential predictors. For example, Addae (2020) explores the relationship between young people's socio-economic status, social capital, and well-being in Ghana, and Laurence (2019) studies the relationship between community disadvantage, young people's social capital and well-being in England. Appendix 1 summarises the key details of these studies.

All eight studies were conducted in the realm of health sciences, psychology or interdisciplinary setting. Their foremost interest was in well-being, not in social capital, as such. This may explain why many of the studies define social capital only cursorily without relying on any dominant social capital theories. Only three of the eight studies use some elements of Putnam's theoretical framework. Two of them deal with the dyad of bonding and bridging social capital (Yoo 2019;

Ko and Kuo 2009), while one considers the quality of social networks as an indication of social capital (Laurence 2019).

Most of the eight studies we have identified, operationalise social capital through such dimensions as family social capital (including family sense of belonging, family cohesion, family autonomy and support, family control), friends social capital, school social capital and/or community social capital (Addae 2020; Bae 2019; Geraee, Eslami, and Soltani 2019; Morgan, Rivera, Moreno, and Haglund 2012; Lau and Li 2011). Typically, these studies use large batteries of variables to compose a latent factor or a composite index for social capital. However, many of the identified studies do not specify the detailed variables used for such a purpose, only the Cronbach's alpha value to evidence the internal reliability of the used scale. The provided information is sufficient though to reveal that the studies diverge considerably in the way they operationalise the concept of social capital.

There is less variation in the way the studies have operationalised the outcome variable, subjective well-being. The most popular ones include some form of happiness or life satisfaction scales (Laurence 2019; Lau and Li 2011; Bae 2019; Geraee, Eslami, and Soltani 2019; Yoo 2019; Ko and Kuo 2009) and Cantril's ladder (Addae 2020; Morgan, Rivera, Moreno, and Haglund 2012). It is noted that sometimes domain-specific well-being scales run the risk of leading to biased results if the same model includes related items both as predictors and as part of the outcome variable (e.g. "I like school very much" as part of the satisfaction-scale and "I feel part of my school" or "I feel close to people at school" as part of the predictor).

All the eight studies indicate that social capital has a significant positive relation with adolescents' subjective well-being (Addae 2020; Bae 2019; Ko and Kuo 2009; Lau and Li 2011; Laurence 2019; Yoo 2019; Morgan, Rivera, Moreno, and Haglund 2012; Geraee, Eslami, and Soltani 2019). In a study on 13-18 year old adolescents in Ghana, Addae additionally observes that adolescents' social capital and well-being are affected by their socioeconomic status (Addae 2020). Yoo notes that in South Korea social capital is not only associated with well-being but it also facilitates adolescents' capacity to positively cope with academic stress (Yoo 2019). In England, while analysing community-level social capital amongst adolescents, Laurence notices that the overall socioeconomic level of the living area shapes social relations. Socioeconomically disadvantaged neighbourhoods reduce positive interaction and increase negative interaction among young people. Both types of interaction are in turn directly associated with young people's well-being. (Laurence 2019).

There is a growing research interest in social capital that is expressed on the Internet. Three of the eight studies assess the relationship between social media use, social capital, and well-being. Their findings about the relationship between social media and well-being are contradictory, but all of them found a positive association between social capital and well-being (Geraee, Eslami, and Soltani 2019; Bae 2019; Ko and Kuo 2009).

We have found only one study, that of Sung-Man Bae (2019) that explores young people's social capital and well-being with a longitudinal research design. Bae's study focuses on Korean adolescents and suggests that a more intense use of smartphones is related to greater social capital over time, and that in turn is related to greater subjective well-being over time. To our knowledge, this is the only study to provide empirical evidence of a causal relationship between young people's social capital and well-being. More longitudinal evidence of the effect of social capital among young people is clearly needed.

None of the eight identified papers share the same definition of social capital and even those relying on Putnam's theory (Laurence 2019; Yoo 2019; Ko and Kuo 2009) vary considerably in the way they operationalise it. None of them apply Putnam's core dimensions of networks, trust, and reciprocity.

In the present study, we analyse the association between young people's social capital and well-being strictly following Putnam's conceptualisation. We operationalise social capital following four guiding principles: theory-driven, parsimony, replicability, and age-sensitive appropriate for the target group. We hope this could pave the way for a more systematic approach to social capital and its importance for well-being that could be expanded at a later stage to international comparison and longitudinal modelling. In the following section, we describe our approach in detail.

4 Data and method

4.1 Sample and procedure

The present study is based on the third wave of the International Survey of Children's Well-Being (ISCWeB: www.isciweb.org), collected in 2018-2019. The survey targeted 2nd, 4th, and 6th-grade students in 35 countries and covered a wide range of themes, from family background to different areas of the children's lives, daily activities, and subjective well-being. The Finnish questionnaire included additional questions related to social capital. The present study uses the Finnish sub-sample of sixth-graders.

Stratified sampling was based on four major regions in Finland. Thereafter, a random selection of municipalities was conducted according to the proportional number of students in each region making the sample nationally representative of sixth graders. Data collection was administered online using Webropol-survey tool. The ethical committee of the host institution of the authors approved the study protocol in 2018. After parental consent, the children themselves made the final decision on participation. They were also informed of the confidentiality and possibility of discontinuing the survey at any point. The response rate of the whole sample was 80% (n=1075 of 6th graders). Our analytical sample only includes cases with no missing values in the variables of interest, n: 858.

The present article builds on a study of DBA that explored the effects of a few socio-demographic factors (age, gender, born in-country, three asset variables and current country of living) on children's subjective well-being in 14 countries (n: 34,512). They carried out the study with linear regression using three different subjective well-being scales as comparative outcome variables, including one context-free item (Overall Life Satisfaction scale) and two domain-specific scales.

While they detected some differences in the magnitude of the estimates across the well-being scales, all their analyses indicated that the current country of living contributed the most, and demographic variables (age, gender, born in-country) contributed the least to well-being. Overall, DBA were able to explain 11–20% of the variance in well-being.

The present study continues on from the DBA study, and seeks to answer, (i) to what extent social capital, i.e. social networks, trust and reciprocity, relates to young people's subjective well-being, and (ii) whether the importance of these three dimensions vary at different points of the SWB distribution.

We have used the same modelling method and, to the extent possible, the same variables as DBA, only adding the measures of social networks, reciprocity, and trust. However, there are some important differences to the original study. First, we only used two non-contextual well-being scales as our independent variables to avoid the risk of overlapping dependent variables with the independent ones. Furthermore, instead of including the current countries of living in the model, we used the dataset of a single country (Finland). Lastly, we adopted both a parametric and a non-parametric approach for the analysis; the reasons for this are justified below.

4.2 Instruments

Dependent variable: We used two separate well-being scales. First, an overall life satisfaction scale (OLS-scale), based on a single question of "how satisfied are you with your life as a whole," which is frequently used in social sciences and economics. For comparability reasons, we transformed the 11-point response scale (0 = "completely dissatisfied", 10 = "completely satisfied") to 0-100.

Second, we used the Students' Life satisfaction Scale (SLSS-scale, with Cronbach alpha .979), which is perhaps mostly used by psychologists. SLSS-scale is a composite indicator measuring cognitive subjective well-being through five separate statements: "My life is going well", "My life is just right", "I have a good life", "I have what I want in life" and "The things in my life are excellent" (Huebner 1991; Diener, Emmons, Larsen & Griffin 1985). We transformed the sum of the11-point agreement scales (0 = "does not agree at all", 10 = "fully agree") to 0-100.

Social capital: We used nine variables to measure social capital, three for each dimension. Instead of combining the variables into fewer composite indicators as many researchers have done, we kept them separate to be able to discern the effects of family relationships from those with other people.

To measure social networks, we used the following questions: "How often do you spend time relaxing, chatting or having fun with your family" (0 = "never", 5 = "every day"); "how often do you meet your friends after school hours?" (0 = "never", 5 = "every day"); and "do you currently have any close person, with whom you can talk about almost any personal matter" (0 = "none", 3 = "several close persons").

We measured trust through a set of three questions: "Tell us, how strongly you trust (a) your own family, (b) your friends, (c) your neighbours", with a response scale ranging from 0 = "not at all" to 4 = "very strongly".

Although the concept of reciprocity implies both providing and receiving help, our dataset only contained questions related to the reception of help. We used the following three statements as proxies for reciprocity: "If I have a problem, my parents help me", "If I have a problem, my friends help me", and "If I have a problem at school, my teacher helps me", each with a response scale ranging from 1 = "disagrees" to 5 = "fully agrees".

For the sake of comparability, we used standardised versions of the social capital variables in all the models.

Control variables: We largely used the same variables included in DBA's models as our control variables: age, gender, and whether the person was born in the country (yes-no). Moreover, we included a material deprivation index composed of eight dummies about material items that the respondent might have, including such items as good clothes, access to the Internet at home, pocket money and a mobile phone (0=not deprived, 8=heavily deprived). In our model, the deprivation index substituted the three possession dummies used by DBA.

4.3 Analysis

Considering that the social capital variables were measured on an ordinal scale (although we have treated them as continuous ones in the analysis[3]), we first ran a Kruskal-Wallis nonparametric test. The test results indicated significant differences in the mean values of the dependent variable across different categories of social capital variables, which justified their inclusion in the model.

We carried out the analysis in two parts. First, we assessed the association between social capital and well-being with ordinary least squares linear regression. We compared five linear models; the first model only comprised the control variables (corresponding to the full model in DBA's analysis). Thereafter, to assess the relative importance of each dimension of social capital, we ran three models, each with the set of variables of a separate dimension of social capital – networks, trust, and reciprocity – added to the first model. The fifth model included all the variables at the same time. We ran the linear models for both OLS-scale and SLSS-scale as the dependent variables, and compared the magnitude of estimates and the coefficient of determination between the models, as did DBA.

Because of the strong skewness of the outcome variables (see below), we ran a test for heteroscedasticity, which proved to be significant (Breusch-Pagan test, $p < 0.000$). We, therefore, sought a non-parametric approach to check whether the covariates related differently to well-being at different points of the distribution of the outcome variable. We did this with a quantile regression analysis, but only using the SLSS-scale, which is a more truly continuous measure. To avoid conditioning the quantiles by the set of covariates, we used an unconditional version of quantile regression (Rios-Avila 2020; Borah and Basu 2013; Firpo, Fortin, and Lemieux 2009). To interpret the results at an individual level, the assumption of rank invariance or rank similarity must remain true (Dong and Shen 2018; Gregg, Macmillan, and Vittori 2019). However, our data did not contain instrumental variables that would have allowed us to test rank invariance/similarity, and while we believe social capital as such can move people from lower to higher levels of wellbeing, we are rather confident that a one unit change in any one variable alone would hardly be sufficient to do so. Thus, we trust the assumption holds true, and interpret the results at an individual level.

For the analysis, we used Stata 16.0 software. We ran both the linear and the quantile regression models using a case weight to reflect the stratified sampling strategy and the distribution of the young people between the strata. The case weight has been calculated so that the size of the weighted sample remains the same as that of the unweighted sample. For quantile regression, we used the Stata command "rifhdreg" that accepts the same case weight to obtain results comparable to those of the linear regression.

The cross-sectional data design impedes any claims about causality or direction of the association between the dependent and independent variables. However, the dominant postulation is that social capital impacts well-being rather than the other way around (e.g. Helliwell and Putnam 2004; Bae 2019). Without being able to put this to test, we too have endorsed this assumption.

Table 1 presents the descriptive statistics for the full sample and for three selected fractions of the SLSS distribution. Due to the limited overall sample size (n: 858), the fractions become admittedly small, but this allows us to illustrate

[3] We tested both models where social capital variables were treated as continues vs. ordinal ones. The one with continuous variables resulted in a better fit (BIC).

that there is significantly and systematically more social capital accumulated at the upper extreme of the well-being scale, demonstrated by every indicator included. It should be noted that these fractions are different from the quintiles in the regression analysis, which refer to specific points in the distribution.

The overall level of well-being in the sample is high with a mean score of 88 (median 90) on the OLS-scale and 86 (median 90) on the SLSS-scale. On both scales, the distribution is strongly skewed to the left with a peak at 100. Approximately 46% of the sample scores are a full 100 on OLS-scale and 25% of the scores are 100 on SLSS-scale.

Table 1: Weighted descriptive statistics by quantile ranges

Measures	Total Mean (SE)	Lowest 10% Mean (SE)	40-50% Mean (SE)	Highest 25% Mean (SE)
Dependent variables				
OLS-scale	88.17	**44.65**	92.20	**99.61**
	(0.67)	(3.30)	(0.67)	(0.13)
SLSS-scale	86.39	**41.32**	90.00	**100.00**
	(0.64)	(2.54)	(0.00)	(0.00)
Independent variables				
Networks				
Number of close persons	2.23	**1.29**	2.36	**2.56**
	(0.03)	(0.12)	(0.10)	(0.06)
Freq. time spent with family	3.20	**1.80**	3.14	**3.88**
	(0.05)	(0.17)	(0.12)	(0.08)
Freq. see friends	2.81	**2.25**	2.86	**3.11**
	(0.05)	(0.16)	(0.11)	(0.09)
Reciprocity				
Family helps with problems	3.48	**2.23**	3.54	**3.80**
	(0.03)	(0.14)	(0.07)	(0.05)
Friends help with problems	3.25	**2.80**	3.18	**3.56**
	(0.03)	(0.14)	(0.09)	(0.06)
Teachers help at school	2.97	**2.17**	3.04	**3.36**
	(0.04)	(0.15)	(0.09)	(0.07)
Trust				
Trust in family	3.66	**2.60**	3.76	**3.96**
	(0.02)	(0.14)	(0.04)	(0.01)
Trust in friends	3.33	**2.96**	3.30	**3.63**
	(0.03)	(0.12)	(0.06)	(0.04)
Trust in neighbours	1.94	**1.00**	2.01	**2.47**
	(0.04)	(0.13)	(0.10)	(0.08)
Control variables				
Age	12.17	12.12	12.28	12.14
	(0.02)	(0.05)	(0.05)	(0.03)
Deprivation index	0.25	**0.58**	0.20	**0.10**
	(0.02)	(0.12)	(0.05)	(0.04)
	Proportion (SE)			
Gender (girls)	55.64	69.24	45.47	46.72
	(1.80)	(5.85)	(5.16)	(3.57)
Born in country	95.88	91.59	96.77	95.25
	(0.69)	(3.49)	(1.63)	(1.46)
n	858	70	105	218

Bolded values refer to t-test results indicating statistically significant differences in means between the lowest 10% and the highest 25%.

5 Results

Tables 2 and 3 present the results of the linear regression models. Similar to DBA, we too found that the demographic and socioeconomic background variables alone have a rather limited share of the variance on well-being. Our analyses results show even lower coefficients of determination for the baseline models than obtained by DBA, which is likely due to the different contexts of the studies (Finland vs. 14 countries across the world).

Our results reveal that social capital adds considerably to the baseline model; it explains 38% of the variance of OLS-scale and 46% of the variance of SLSS-scale when adjusting for the control variables. Irrespective of the scale of the dependent variable, the dimension with the strongest association with well-being transpires to be trust, which alone explains 32-38% of the variance, followed by reciprocity (explaining 23-29%) and then social networks (explaining 19-25%). There is moderate collinearity (VIF ≤ 2,02) between the social capital variables, which explains why the coefficient of determination of the full model is not even higher than it is.

On both well-being scales and in every model, all family-related variables are positive and strongly statistically significant. Moreover, the number of close trusted persons and trust in neighbours are significant on both scales. In general, the results show a similar pattern across the two well-being scales, but there are few differences. In the fourth model, trust in friends is significant (at the level of p<0,05) only on SLSS-scale but it loses the significance in the full model. In the full model, help received from teachers remains weakly significant (p<0,05) on SLSS-scale but not on OLS-scale. Overall, SLSS-scale appears somewhat more sensitive to social capital.

Table 2: Weighted linear regression on the association between social capital and overall life satisfaction (standardized coefficients)

Overall life satisfaction	Model 1	Model 2	Model 3	Model 4	Model 5
Age	1.057	1.889	0.572	1.683	1.625
Gender (ref. boy)	4.415***	4.658***	5.398***	3.629***	4.078***
Born in country (ref. "no")	4.436	6.309	5.006	4.220	5.261
Deprivation index	-6.027***	-3.350**	-3.651**	-3.113**	-1.957*
Networks					
Number of close persons		4.850***			2.258***
Freq. time spent with family		5.252***			1.967**
Freq. see friends		0.650			0.720
Reciprocity					
Family helps with problems			7.405***		3.389***
Friends help with problems			1.035		-0.070
Teachers help at school			2.354**		0.609
Trust					
Trust in family				9.764***	6.540***
Trust in friends				0.829	0.213
Trust in neighbours				2.507***	1.431*
_cons	70.570***	57.725***	74.831***	62.104***	61.549***
adj. R^2	0.060	0.254	0.288	0.379	0.439
Adj. R2 change	-	0.194	0.228	0.319	0.379

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3: Weighted linear regression on the association between social capital and Student's life satisfaction scale (standardized coefficients)

Students' life satisfaction scale	Model 1	Model 2	Model 3	Model 4	Model 5
Age	1.267	2.065	0.785	1.937*	1.760*
Gender (ref. boy)	3.344**	3.541***	4.657***	2.695**	3.399***
Born in country (ref. "no")	6.160	8.445*	6.858	5.643	7.240*
Deprivation index	-4.676***	-1.873	-2.166*	-1.620*	-0.503
Networks					
Number of close persons		4.520***			1.686***
Freq. time spent with family		6.329***			2.936***
Freq. see friends		0.556			0.379
Reciprocity					
Family helps with problems			7.436***		3.435***
Friends help with problems			1.589		0.355
Teachers help at school			3.073***		1.271*
Trust					
Trust in family				9.811***	6.167***
Trust in friends				1.514*	0.797
Trust in neighbours				2.814***	1.530**
_cons	64.726***	51.852***	68.615***	55.865***	56.087***
adj. R^2	0.041	0.287	0.331	0.421	0.504
Adj. R2 change	-	0.246	0.290	0.380	0.463

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The quantile regression analysis (Table 4) reveals a slightly more complex picture. Overall, most of the social capital variables obtained a higher coefficient at lower quantiles, which then gradually decreases towards the higher quantiles. The pattern is particularly notable concerning trust in family and help received from family. Only trust in friends and help received from friends show a slightly reverse pattern.

Considering only the statistically significant variables, we note that at the lower extreme of the distribution, only family-related variables and that of the number of confidants was significant. The strongest effects were triggered by trust in family and help received from family. At the upper most quantile, not only the variables related to family but also to friends, teachers and neighbours proved significant. At the upper end, time spent with family received the highest coefficient but only slightly higher than that of trust in friends and neighbours, but at the same time trust in family did not turn out statistically significant. Notably, at both ends of the distribution there are some variables of each dimension of social capital that are significantly related to well-being.

In Figure 1, the association with the SLSS-scale is plotted separately for each key covariate while also marking the estimates resulting from ordinary linear regression. The overlapping confidence intervals indicate that there are no significant differences between the linear and quantile models, or between the lowest and highest quantile for most variables, but with regards to the importance of trusting in one's family and receiving help from family, the non-parametric model reveals significant differences, which the linear model fails to indicate. These two variables mean significantly more for well-being at the lower quantiles than at the upper ones.

Table 4: Weighted unconditional quantile regression on the association between social capital and Student's life satisfaction scale (standardized coefficients)

SLSS-scale	q10	q20	q30	q40	q50	q60	q75
Networks							
Number of close persons	3.670*	3.276**	1.933*	0.956	0.830	0.063	0.136
	(1.656)	(1.003)	(0.776)	(0.606)	(0.580)	(0.511)	(0.436)
Freq. time w. family	4.118*	4.192***	4.275***	3.148***	2.626***	2.631***	1.985***
	(1.677)	(0.988)	(0.751)	(0.598)	(0.565)	(0.513)	(0.443)
Freq. see friends	1.304	-0.067	-0.533	0.079	0.308	-0.001	0.338
	(1.571)	(0.837)	(0.661)	(0.518)	(0.502)	(0.468)	(0.418)
Reciprocity							
Family helps with probl.	10.357***	3.602**	2.700**	1.167	1.343*	1.016	0.372
	(2.293)	(1.185)	(0.911)	(0.689)	(0.654)	(0.557)	(0.470)
Friends help with probl.	0.452	0.787	0.882	1.268	0.920	0.737	0.811
	(2.521)	(1.353)	(1.053)	(0.832)	(0.770)	(0.631)	(0.564)
Teachers help at school	1.050	0.651	1.441	1.184	1.282*	1.431**	0.902*
	(1.650)	(0.974)	(0.771)	(0.610)	(0.580)	(0.511)	(0.455)
Trust							
Trust in family	11.907***	7.958***	4.350***	4.129***	3.356***	2.231***	0.727
	(2.576)	(1.363)	(0.991)	(0.753)	(0.693)	(0.538)	(0.423)
Trust in friends	0.557	1.313	1.926	1.895*	1.714*	1.878**	1.386**
	(2.283)	(1.307)	(0.989)	(0.774)	(0.711)	(0.627)	(0.512)
Trust in neighbours	2.247	2.108*	1.712*	1.361*	1.093*	0.949	1.167**
	(1.544)	(0.876)	(0.718)	(0.592)	(0.548)	(0.508)	(0.449)

Standard errors in parentheses. Models are controlled for age, gender, whether the person was born in the country and material deprivation index. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

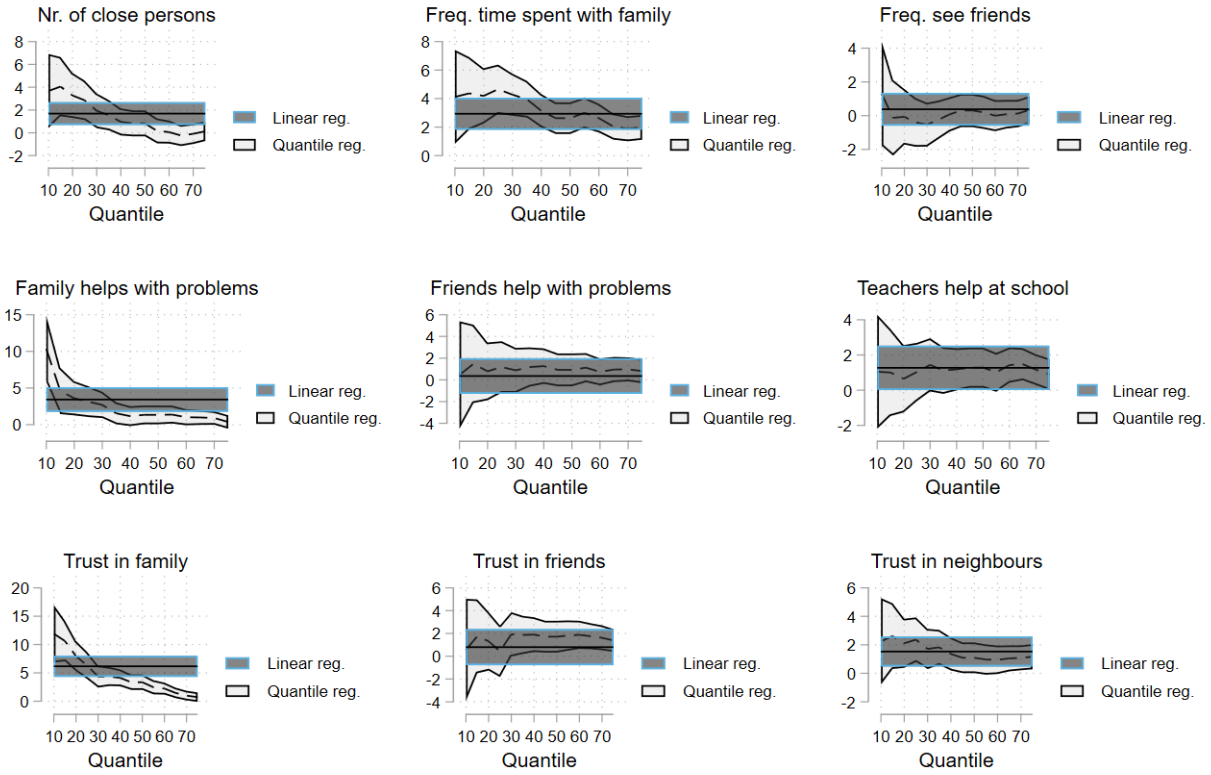

Figure 1: Results of ordinary linear regression and unconditional quantile regression with 95% confidence intervals

6 Discussion

Much research has been done on the association between social capital and subjective well-being, with largely converging conclusions indicating social capital as a positive predictor of well-being. Nevertheless, this area of research remains inconclusive in the sense that the studies are based on different definitions of the key predictor and therefore they do not constitute consistent knowledge on social capital.

In this study, we have operationalised the concept of social capital by strictly following Putnam's theoretical framework as it presents the most comprehensive and yet most specific definition of social capital. In addition to theoretical fidelity, we operationalised the concept seeking parsimony, replicability, and appropriateness for the targeted age group. Nonetheless, our social capital measurement suffered from the notable limitation that the dimension of reciprocity was only covered from the perspective of receiving help but lacked the other equally important dimension of the provision of help. This was caused by the absence of relevant variables in the dataset. That is something future surveys should include.

We explored the association of social capital with well-being using two context-free well-being scales: a one-dimensional OLS-scale and a five-dimensional SLSS-scale. We considered it was important to avoid domain-specific outcome variables that might cause tautological analyses where the explanatory and outcome variables could be confused. The two well-being scales produced similar results both in terms of statistical significance and magnitude of estimates. Small differences were noted though, but only at $p < 0.05$ level. A more conservative interpretation with $p < 0.01$ resulted in very similar results across the two scales. Based on the present results, the SLSS-scale appears somewhat more sensitive to the effects of social capital, but the OLS-scale does not fall far behind. Moreover, given the greater time-effectiveness of gathering data for OLS-scale (one question vs. five questions), it can be considered as a practical and satisfactory measure of well-being, although a more stringent confidence level might be prudent.

On both scales, the results indicated that social capital is indeed already a significant predictor of subjective well-being of young people in their early adolescence. All three dimensions of Putnamian social capital – networks, trust, and reciprocity – revealed a statistically significant association with well-being, but of the three, that of trust generated the strongest effect. On both measurement scales, trust explained more than 30% of the variance in well-being. The moderate collinearity between the three social capital dimensions underlines the importance of including all of them in the model when studying the phenomenon of social capital.

Family-related variables were the ones with the strongest effect on well-being. Other researchers have noted that the importance of family tends to reduce gradually at the same pace as the importance of friends increases (Ahlborg, Svedberg, Nyholm, Morgan and Nygren 2019). Our cross-sectional dataset did not allow us to verify how the association between different dimensions of social capital and well-being changes over time. This is one research area to be looked at in the future.

Instead, we compared the results of linear regression, which is probably the most commonly used approach in social capital research, with those of quantile regression to be able to discern potential differences in the way social capital relates to well-being at different points of well-being distribution. The quantile regression analysis indicated that all the three social capital dimensions – networks, trust, and reciprocity – were significant for well-being across the quantiles, and that intra-family relationships were the strongest predictors of well-being at every quantile. However, the quantile regression also indicated that social capital matters more for those who have least of it and whose well-being is low. For

them, good relationships with and trust in family members are some of the most important factors that could enhance their well-being. On the other hand, for young people who are satisfied with their lives, the importance of family members is lower, albeit still significant, but then relationships with other people, including friends and school personnel gain greater importance. This observation supports Putnam's proposition that at-risk-children who possess the least of social capital, can gain most if their social capital is increased (Putnam 2000). In the present study, this observation would have gone unnoticed if only analysed with ordinary linear regression.

Social capital is a multifaceted asset with inherently intertwined dimensions. Therefore, to analyse any presumed outcome of it, one should consider all its dimensions concurrently to acquire the full picture. There is also a need to consolidate and validate individual-level social capital indicators before the research community can more systematically accumulate results on the outcomes of social capital. We have taken one step in that direction. However, our study is limited by its cross-sectional design and therefore cannot establish any claims about causality.

There is, in general, a need to further expand longitudinal research on social capital to be able to better understand the causes and consequences of it. Some endeavours have been made by looking into the adult population's social capital over a period of time (e.g. Lindström and Giordano 2016; Winkelmann 2008) but only one, to our knowledge, on young people (Bae 2019). Moreover, to explore the extent to which social capital can be considered a universal predictor of well-being will require a systematic assessment of the relation between social networks, trust, and reciprocity with well-being across countries. This is still an underexplored area that future research should shed more light on.

If we can prove the causal link between young people's social capital and well-being, the relevant next step will be to consider how to support social capital accumulation. No doubt, schools are best placed to bolster social network building, trust in other people, and reciprocity even among those young people whose home environment does not provide strong social capital. Embracing, at all levels, the strengthening of social capital as a permanent part of the educational programme could be one of the best investments in the future well-being of young people.

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Figure 1

Click here to access/download;Figure;Figure 1 - Results of linear and quantile regression.png

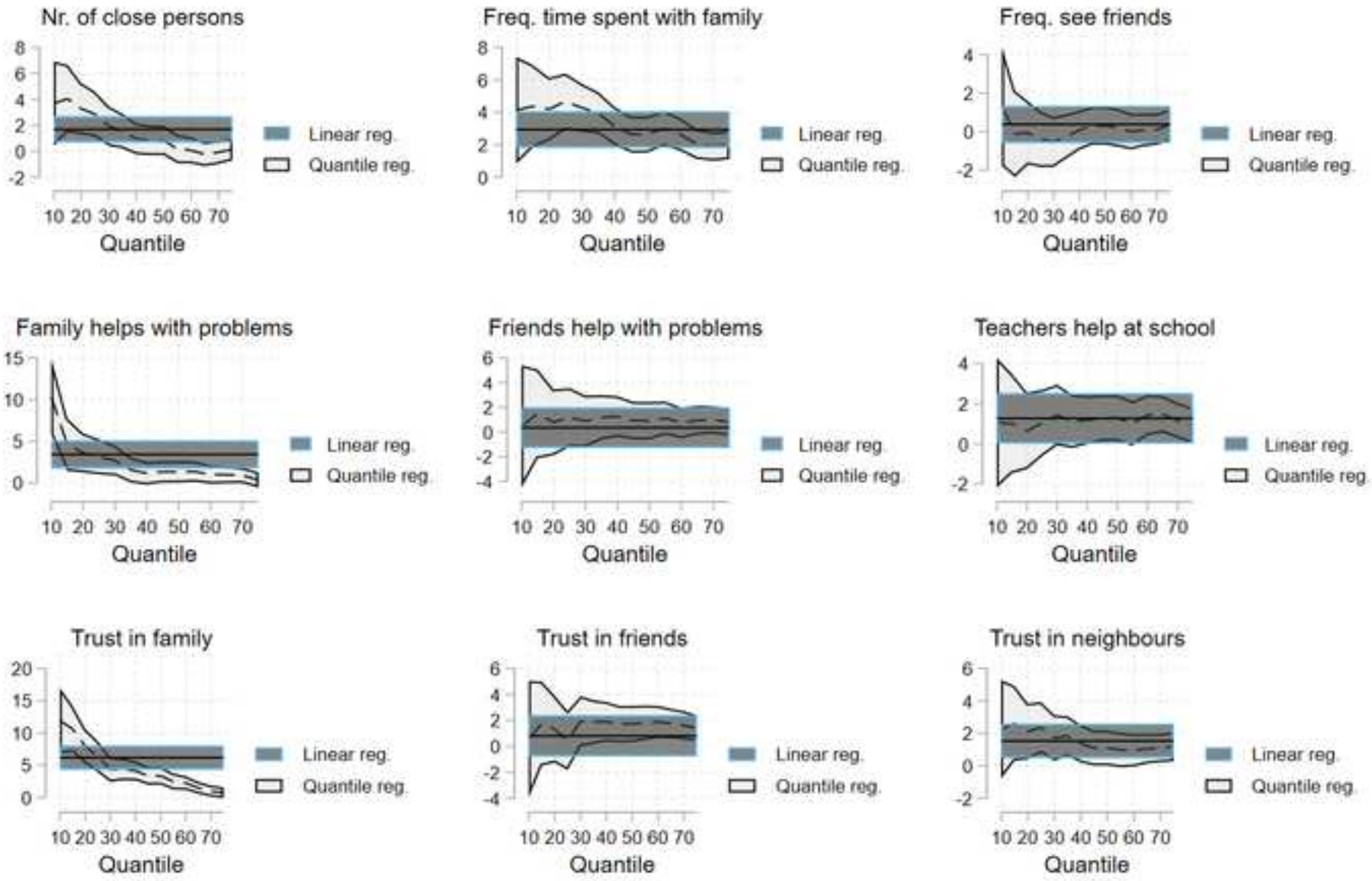

Table 1: Weighted descriptive statistics by quantile ranges

Measures	Total Mean (SE)	Lowest 10% Mean (SE)	40-50% Mean (SE)	Highest 25% Mean (SE)
Dependent variables				
OLS-scale	88.17	**44.65**	92.20	**99.61**
	(0.67)	(3.30)	(0.67)	(0.13)
SLSS-scale	86.39	**41.32**	90.00	**100.00**
	(0.64)	(2.54)	(0.00)	(0.00)
Independent variables				
Networks				
Number of close persons	2.23	**1.29**	2.36	**2.56**
	(0.03)	(0.12)	(0.10)	(0.06)
Freq. time spent with family	3.20	**1.80**	3.14	**3.88**
	(0.05)	(0.17)	(0.12)	(0.08)
Freq. see friends	2.81	**2.25**	2.86	**3.11**
	(0.05)	(0.16)	(0.11)	(0.09)
Reciprocity				
Family helps with problems	3.48	**2.23**	3.54	**3.80**
	(0.03)	(0.14)	(0.07)	(0.05)
Friends help with problems	3.25	**2.80**	3.18	**3.56**
	(0.03)	(0.14)	(0.09)	(0.06)
Teachers help at school	2.97	**2.17**	3.04	**3.36**
	(0.04)	(0.15)	(0.09)	(0.07)
Trust				
Trust in family	3.66	**2.60**	3.76	**3.96**
	(0.02)	(0.14)	(0.04)	(0.01)
Trust in friends	3.33	**2.96**	3.30	**3.63**
	(0.03)	(0.12)	(0.06)	(0.04)
Trust in neighbours	1.94	**1.00**	2.01	**2.47**
	(0.04)	(0.13)	(0.10)	(0.08)
Control variables				
Age	12.17	12.12	12.28	12.14
	(0.02)	(0.05)	(0.05)	(0.03)
Deprivation index	0.25	**0.58**	0.20	**0.10**
	(0.02)	(0.12)	(0.05)	(0.04)
	Proportion (SE)			
Gender (girls)	55.64	69.24	45.47	46.72
	(1.80)	(5.85)	(5.16)	(3.57)
Born in country	95.88	91.59	96.77	95.25
	(0.69)	(3.49)	(1.63)	(1.46)
n	858	70	105	218

Bolded values refer to t-test results indicating statistically significant differences in means between the lowest 10% and the highest 25%.

Table 1: Weighted linear regression on the association between social capital and overall life satisfaction (standardized coefficients)

Overall life satisfaction	Model 1	Model 2	Model 3	Model 4	Model 5
Age	1.057	1.889	0.572	1.683	1.625
Gender (ref. boy)	4.415***	4.658***	5.398***	3.629***	4.078***
Born in country (ref. "no")	4.436	6.309	5.006	4.220	5.261
Deprivation index	-6.027***	-3.350**	-3.651**	-3.113**	-1.957*
Networks					
Number of close persons		4.850***			2.258***
Freq. time spent with family		5.252***			1.967**
Freq. see friends		0.650			0.720
Reciprocity					
Family helps with problems			7.405***		3.389***
Friends help with problems			1.035		-0.070
Teachers help at school			2.354**		0.609
Trust					
Trust in family				9.764***	6.540***
Trust in friends				0.829	0.213
Trust in neighbours				2.507***	1.431*
_cons	70.570***	57.725***	74.831***	62.104***	61.549***
adj. R^2	0.060	0.254	0.288	0.379	0.439
Adj. R2 change	-	0.194	0.228	0.319	0.379

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 1: Weighted linear regression on the association between social capital and Student's life satisfaction scale (standardized coefficients)

Students' life satisfaction scale	Model 1	Model 2	Model 3	Model 4	Model 5
Age	1.267	2.065	0.785	1.937*	1.760*
Gender (ref. boy)	3.344**	3.541***	4.657***	2.695**	3.399***
Born in country (ref. "no")	6.160	8.445*	6.858	5.643	7.240*
Deprivation index	-4.676***	-1.873	-2.166*	-1.620*	-0.503
Networks					
Number of close persons		4.520***			1.686***
Freq. time spent with family		6.329***			2.936***
Freq. see friends		0.556			0.379
Reciprocity					
Family helps with problems			7.436***		3.435***
Friends help with problems			1.589		0.355
Teachers help at school			3.073***		1.271*
Trust					
Trust in family				9.811***	6.167***
Trust in friends				1.514*	0.797
Trust in neighbours				2.814***	1.530**
_cons	64.726***	51.852***	68.615***	55.865***	56.087***
adj. R^2	0.041	0.287	0.331	0.421	0.504
Adj. R2 change	-	0.246	0.290	0.380	0.463

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 1: Weighted unconditional quantile regression on the association between social capital and Student's life satisfaction scale (standardized coefficients)

SLSS-scale	q10	q20	q30	q40	q50	q60	q75
Networks							
Number of close persons	3.670*	3.276**	1.933*	0.956	0.830	0.063	0.136
	(1.656)	(1.003)	(0.776)	(0.606)	(0.580)	(0.511)	(0.436)
Freq. time w. family	4.118*	4.192***	4.275***	3.148***	2.626***	2.631***	1.985***
	(1.677)	(0.988)	(0.751)	(0.598)	(0.565)	(0.513)	(0.443)
Freq. see friends	1.304	-0.067	-0.533	0.079	0.308	-0.001	0.338
	(1.571)	(0.837)	(0.661)	(0.518)	(0.502)	(0.468)	(0.418)
Reciprocity							
Family helps with probl.	10.357***	3.602**	2.700**	1.167	1.343*	1.016	0.372
	(2.293)	(1.185)	(0.911)	(0.689)	(0.654)	(0.557)	(0.470)
Friends help with probl.	0.452	0.787	0.882	1.268	0.920	0.737	0.811
	(2.521)	(1.353)	(1.053)	(0.832)	(0.770)	(0.631)	(0.564)
Teachers help at school	1.050	0.651	1.441	1.184	1.282*	1.431**	0.902*
	(1.650)	(0.974)	(0.771)	(0.610)	(0.580)	(0.511)	(0.455)
Trust							
Trust in family	11.907***	7.958***	4.350***	4.129***	3.356***	2.231***	0.727
	(2.576)	(1.363)	(0.991)	(0.753)	(0.693)	(0.538)	(0.423)
Trust in friends	0.557	1.313	1.926	1.895*	1.714*	1.878**	1.386**
	(2.283)	(1.307)	(0.989)	(0.774)	(0.711)	(0.627)	(0.512)
Trust in neighbours	2.247	2.108*	1.712*	1.361*	1.093*	0.949	1.167**
	(1.544)	(0.876)	(0.718)	(0.592)	(0.548)	(0.508)	(0.449)

Standard errors in parentheses. Models are controlled for age, gender, whether the person was born in the country and material deprivation index. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Appendix – Studies exploring the association between young people's subjective well-being and their social capital

Article	Sample population	Theoretical framework	Method	Definition of social capital	Social capital measurements	Well-being measurements	Result
Addae, Evelyn Aboagye 2020. The mediating role of social capital in the relationship between socioeconomic status and adolescent wellbeing: evidence from Ghana. BMC Public Health, 20(1): 1-11.	13-18 years	Earlier research	Path analysis	A valuable social resource that can be accessed by adolescents at the individual and community level of their social contexts for promotions of health and wellbeing	4 composite variables: family sense of belonging, school sense of belonging, family autonomy & support, family control	2 variables used separately: Cantril ladder, a happiness scale	Three measures of family social capital protected adolescents' life satisfaction and happiness against the effects of socioeconomic status. School sense of belonging augmented adolescents' wellbeing but played no mediating role in the relationship between socioeconomic status and well-being.
Bae, Sung-Man 2019. The relationship between smartphone use for communication, social capital, and subjective well-being in Korean adolescents: Verification using multiple latent growth modeling. Children & Youth Services Review, 96: 93-99.	10,98 years (mean age)	Earlier research	Multivariate latent growth modelling	Resources and values that are available through offline and online social networks and includes social interactions, social ties, social support, and reciprocity	1 social capital factor composed of 3 sub-factors: family social capital, friend social capital, community social capital	One SWB-factor composed of 3 items: I am happy to live, I do not have many worries, I think my life is happy	Smartphone use for communication was related to greater social capital over time, and greater social capital was associated with greater subjective well-being over time.
Geraee Narjes, Ahmad Ali Eslami & Raheleh Soltani 2019. The relationship between family social capital, social media use and life satisfaction in adolescents. Health Promotion Perspectives, 9(4):307-313.	12-19 years	Earlier research	Structural equation modelling	Family social capital: family characteristics, such as family environment, family functioning, family composition, family cohesion, and family interactions	1 family social capital factor based on 4 sub-factors: family cohesion, family interactions, lack of family conflicts, and family control	One factor composed of 5 items e.g. In most ways, my life is close to my ideal	Family social capital and social media use explained 50% of the variance in life satisfaction. Family social capital was the strongest predictor of life satisfaction

Ko, Hsiu-Chia & Feng-Yang Kuo. Can blogging enhance subjective well-being through self-disclosure? CyberPsychology & Behavior, 12(1): 75-79.	16-22 years	Putnam: bonding & bridging	Structural equation modelling	Bonding and bridging social capital. Bonding capital exists in groups of individuals who share tightly knit, intimate and reciprocal relationships. Bridging social capital exists in people coming from different networks through which members can share diversified messages and acquire resources from the outside.	1 latent factor on social bonding, 1 latent factor on social bridging, 1 latent factor on social integration	The evaluation made by a blogger on his or her social contact, human relationships, and self-satisfaction after blogging	Self-disclosure of bloggers significantly and directly affected their perception of social integration and bonding and bridging social capital, which in turn promoted bloggers' subjective well-being.
Lau, Maggie & Wanxin Li 2011. The extent of family and school social capital promoting positive subjective well-being among primary school children in Shenzhen, China. Children and Youth Services Review, 33(9): 1573-1582.	11-12 years	Earlier research	Linear regression	Structural vs. cognitive social capital. Structural social capital is an objective construct, and refers to the social setting which facilitates or inhibits interpersonal interactions, and access to resources. Cognitive social capital is a subjective element and refers to shared norms, values, trust, attitudes, and beliefs.	2 composite variables for family social capital (cognitive vs. structural), 4 composite variables for school social capital (cognitive, structural peer relations, teacher-student relationship, bonds between parents and schools)	One composite indicator: self-reported happiness, feel pressured by schoolwork, self-rated health status	Family social capital and school social capital explained 18.7% and 3.5% respectively of the variation in subjective well-being.
Laurence, James 2019. Community disadvantage, inequalities in adolescent subjective well-being, and local social relations: The role of positive and negative social interactions. Social Science & Medicine, 237, artID: 112442.	16–17-years	Putnam and earlier research	Random-intercept hierarchical, mixed-effects linear regression models	Positive and negative social relations	1 composite variable for positive social interaction, 1 composite variable for negative social interactions, 1 variable on trust on neighbourhood	One factor composed of 3 items, incl. life satisfaction scale, happiness scale, things-you-do-in-life-are-worthwhile scale	Community disadvantage reduced positive social relations and increased negative relations. Through these dual, independent social relations pathways community disadvantage affected subjective well-being.

Morgan, Antony R., Francisco Rivera, Carmen Moreno & Bo JA Haglund 2012. Does social capital travel? Influences on the life satisfaction of young people living in England and Spain. BMC Public Health 12:138, 1-12.	15 years	Earlier research	General linear modelling and decision tree analyses	Social relationships, levels of trust, group membership and civic engagement	6 composite indicators: Family social capital (family sense of belonging, autonomy and control), family social support, school social capital (school sense of belonging, autonomy and control), school social support, neighbourhood social capital (sense of belonging), peer social support (communication with friends)	Cantril ladder	Family autonomy and control, family and school sense of belonging and social support at home and school were important factors for well-being, but they manifested themselves differently in each country
Yoo, Changmin 2019. Stress coping and mental health among adolescents. Applying a multidimensional stress coping model. Children & Youth Services Review, 99: 43-53.	15-18 years	Putnam and earlier research	Structural equation modelling	Bonding social capital: being linked to inward-looking bonds, focusing on relationships and networks of trust and reciprocity that ties within groups, and is found between individuals in tightly-knit, emotionally close relationships from family and close friends	One factor for bonding-social-capital-with-peers, one factor for bonding-social-capital-with-parents	One factor composed of 5 items e.g. I think I'm healthy, I like school very much	Parent-bonding-social-capital and peer-bonding-social-capital directly and indirectly affected adolescents' subjective well-being and suicide ideation