Article

Socioeconomic Status, Cultural Capital, and Social Capital in Adults: A Structural Equation Model

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Abstract

Background: Sociocultural level (SCL) comprises Socioeconomic Status (SES), Cultural Capital (CC), and Social Capital (SC). The relationships between all SCL dimensions have never been investigated. This study aimed to develop a structural equation model representing how age affects the relationships between educational level, occupational prestige (as a measure of SES), CC, and SC for men and women. **Method:** SES, dimensions of CC and SC were measured with valid scales for 654 adults (63% female) aged 19 to 74 years ($M[SD]$ = 42.86 [13.32]), that had or used to have an occupation and the majority of whom had at least a university degree (65%). All lived in a medium-sized town in Italy. **Results:** Age affected the interrelated indicators of SES (educational level and occupational prestige), which in turn affected the interrelated dimensions CC and SC (CFI = .97; RMSEA = .073 [CI = .053 - .095]; SRMR = 0.031). The system of relationships was simpler in men than in women, with educational level being less relevant in affecting the other constructs. **Conclusions:** The hierarchical structure of SCL and effect of age and gender must be properly taken into account in studies on the effects of SCL on human behavior.

Keywords: Cultural capital, social capital, socioeconomic status, structural equation model, age.

Resumen

***Estatus Socioeconómico, Capital Cultural y Capital Social en Adultos: un Modelo de Ecuaciones Estructurales.* Antecedentes:** el Nivel Sociocultural (NSC) es compuesto de Estatus Socioeconómico (ESS), Capital Cultural (CC) y Capital Social (CS). Nunca se han investigado las relaciones entre las dimensiones del NSC. Este estudio tiene como objetivo desarrollar un modelo de ecuaciones estructurales que represente cómo afecta la edad a las relaciones entre el nivel educativo, el prestigio ocupacional (como medida del ESS), el CC y el CS en hombres y mujeres. **Método:** el nivel educativo, el prestigio ocupacional, las dimensiones del CC y el CS se midieron con escalas validadas en 654 adultos (63% mujeres), de 19 a 74 años de edad, la mayoría en posesión de al menos un título universitario (65%), que tenían o habían tenido una ocupación laboral. Todos vivían en el municipio de una ciudad italiana de tamaño medio. **Resultados:** la edad afecta a los indicadores interrelacionados del ESS, que a su vez afectan a las dimensiones interrelacionadas de CC y CS (CFI = .97; RMSEA = .073 [CI = .053 - .095]; SRMR = 0.031). **Conclusiones:** la estructura jerárquica del NSC y los efectos sobre el mismo de la edad y el género deben ser tenidos en cuenta en el estudio de los efectos del NSC.

Palabras clave: capital cultural, capital social, estatus socioeconómico, modelo de ecuaciones estructurales, edad.

The Sociocultural Level (SCL) designates a set of attitudes, interests, knowledge, and behaviors that depend on an individual's cultural, social, and economic resources and characterizes his or her way of life in society (Lamont & Lareau, 1988). SCL is an environmental factor strictly connected with the proximal processes, i.e., the enduring reciprocal interactions between the individuals and their immediate environment (Bronfenbrenner & Evans, 2000). SCL is a multidimensional construct (Bourdieu, 1986; Buchmann, 2002; Coleman, 1990), including Socioeconomic Status (SES), Cultural Capital (CC), and Social Capital (SC). The three dimensions influence personality profiles (Menardo et al., 2017; Pellicci et al., 2015), adaptive behavior (Balboni et al.,

2021), and behavioral and emotional problems (Bacherini et al., 2021)

Socioeconomic Status, Cultural Capital, and Social Capital

SES defines the individual's position within a social system in which societal values, such as occupational prestige, education, financial resources, power, and access to information, are not evenly distributed (Bornstein & Bradley, 2003). SES is generally evaluated by educational level (e.g., years of education), occupation (e.g., type, prestige, or social status), and income (Coscarelli et al., 2007).

CC refers to the cultural codes that are relevant in the community where an individual lives (Bourdieu & Passeron, 1970; Lamont & Lareau, 1988). These codes relate to activities, attitudes, preferences, formal knowledge, and assets that are widely considered cultural signals of high cultural status (Teachman, 1987). CC includes three dimensions (see Balboni et al., 2019): (a) cultural activities (i.e., visiting museums; attending musical events and theater

performances; reading books) and goods (books or artworks) (e.g., Dumais, 2002); (b) cultural technical skills and knowledge (i.e., using foreign languages and technology; performing in concerts, plays or shows; creating art) (e.g., Lareau & Weininger, 2003); (c) engagement in cultural, community service, religious or political groups/associations (e.g., Jeannotte, 2003).

SC refers to the set of actual or potential resources associated with durable and trustworthy social network connections that are more or less institutionalized (Bourdieu, 1986). SC concerns various types of social ties (Kreuter & Lezin, 2002). Bonding SC includes the relationships within homogeneous groups, such as family, neighbors, or friends, sharing interests and mutual attraction. Bridging SC includes the relationships across groups in the community.

SES and CC are strictly related. Occupational prestige/status is positively related to the development of CC (Nakai, 2011; Roose, 2015). Educational level is one of the most important correlates of cultural consumption (e.g., De Graaf et al., 2000; Lemel & Katz-Gerro, 2015; Nakai, 2011). It affects participation in all highbrow activities (i.e., attending musical events, visiting museums, and spending time reading) but also going to the cinema and restaurants and using media (DiMaggio, 2004; Willekens & Lievens, 2014).

SES and SC are also strictly related. People with a low SES show smaller networks and lower levels of involvement in social and civic activities (Baum et al., 2000) but more local and informal ties with relatives (Horvat et al., 2003; Van Groenou & Van Tilburg, 2003) and neighbors (Baum et al., 2000). Additionally, people with higher SES are more likely to form and maintain ties outside the family (Horvat et al., 2003; Van Groenou & Van Tilburg, 2003). The general purpose of the present investigation is to develop a model that represents the relationships between SES, CC, and SC. Furthermore, we hypothesize that demographic variables, such as age and gender, affect all the three dimensions of SCL.

Effect of Age and Gender

Older people usually have higher cultural participation rates than younger people (e.g., Toepoel, 2011). In contrast, younger people show higher social participation and network size than older people (Cornwell et al., 2008; Kalmijn, 2003). SC levels do not follow a linear trend during aging. While the family network size remains relatively stable throughout life, friendship networks and the number of contacts expand during adolescence and young adulthood until they reach stability and shrink during later adulthood (Lambert et al., 2006; Wrzus et al., 2013). Smaller networks for older individuals are also due to a less frequent use of the Internet (Chang et al., 2015; ISTAT, 2019), which helps to maintain, accrue and mobilize SC (Barbosa Neves et al., 2018; Yu et al., 2018). Age is negatively related to educational level and positively to occupational prestige/status (EUROSTAT, 2021; ISTAT, 2011) and upgrading change (Cheng & Furnham, 2012; Tomlinson et al., 2018).

Regarding gender, men and women have different patterns of cultural consumption and social participation. In general, it seems that CC is a more important resource for women (Willekens & Lievens, 2014). However, participation rates in high-level cultural activities are lower for women belonging to lower social classes, in particular, skilled manual workers and unemployed women (Bihagen & Katz-Gerro, 2000; Katz-Gerro, 2006). Gendered social roles and norms also shape the structure of social networks and,

consequently, the types of resources men and women can access. It has been widely found that women are more involved in informal groups and associative networks concerning arts, education, community service, caregiving, mutual support, and child-centered activities. Men, otherwise, are more likely to be involved in political and economic associations, labor unions and sports clubs and to be engaged as volunteers in leisure and professional activities (Leeves & Herbert, 2014; Lowndes, 2004). In the past, men received better education than women, but, recently, a progressive reduction in gender inequality has occurred (Breen et al., 2010; De Hauw et al., 2017), and, in many Western countries, women's graduation rates exceed those of men (Bertocchi & Bozzano, 2020). However, women still have a disadvantage in the labor market, for example, in terms of wages and career development (Korpi et al., 2013). Conversely, men tend to increase their working hours (Chung & Van der Horst, 2018).

Given this complex picture, we aimed to develop a structural equation model representing how age affects the relationships among educational level, occupational prestige, CC, and SC for males and females. Based on the literature, our central hypotheses are: (1) age affects the interrelated indicators of educational level and occupational prestige; (2) educational level and occupational prestige affect CC and SC; and (3) age, educational level, and occupational prestige have different patterns of relationships with CC and SC in males and females.

Method

Participants

The participants included 654 adults (63% females) aged 19 to 74 years. All had or had had an occupation, and all lived in Perugia, a medium-sized town located in the center of Italy (160 thousand inhabitants). In Table 1, age, living situation, origin, educational level, and occupational prestige are reported for males and females.

In total, 1322 individuals agreed to take part in the online survey. Of them, 472 were excluded because they did not fill out the whole questionnaire ($n = 471$) or were younger than 18 years of age ($n = 1$). Of the remaining 850 individuals, 55 were excluded because their scores on the Balanced Inventory of Desirable Responding (BIDR-6) social desirability scale, Short Form-Italian version (Bobbio & Manganelli, 2011; Paulhus, 1991) were above the cutoff, thus indicating a simulation attempt. Furthermore, 136 individuals were excluded because they never had an occupation (e.g., they were housewives or students). Finally, in agreement with Tabachnick and Fidell's (2013) suggestions on the assumptions to verify before using structural equation modeling, four univariate and one multivariate outliers were excluded (see below).

Instruments

Socioeconomic Status. Educational level and occupational prestige (Table 1) were used as a measure of SES. Occupational prestige was measured with the Italian Occupational Prestige Scale (Meraviglia & Accornero, 2007), an ordinal scale that allows the classification of occupations into 110 categories ordered according to the associated prestige, with a score ranging from 10.84 to 89.93.

Table 1
Characteristics and means (*SD*) scores for the Scale of Cultural Capital and the Personal On-Offline Social Capital Brief Scale dimensions for all participants and the male and female subgroups

	Total (*n* = 654)	Males (*n* = 240)	Females (*n* = 414)
Age			
Mean (*SD*)	42.86 (13.32)	43.46 (13.84)	42.51 (13.01)
Range	19-74	20-74	19-69
Living situation (%)			
Living with biological family	85 (13)	37 (15)	48 (12)
Living with a spouse/boyfriend/girlfriend	384 (59)	125 (52)	259 (63)
Living with biological family and with a spouse/boyfriend/girlfriend	32 (5)	9 (4)	23 (5)
Living on his/her own or with roommates	153 (23)	69 (29)	84 (20)
Origin (%)			
Born in Italy with both Italian parents	603 (92)	221 (92)	382 (92)
Born in Italy with one Italian parent and one foreign parent	22 (3)	9 (4)	13 (3)
Born in Italy with both foreign parents	6 (1)	3 (1)	3 (1)
Not born in Italy	23 (4)	7 (3)	16 (4)
Socioeconomic Status			
Educational level (%)			
Middle school	16 (2)	12 (5)	4 (1)
Vocational school	8 (1)	5 (2)	3 (1)
High school diploma	201 (31)	69 (29)	132 (32)
University degree first circle	82 (13)	31 (13)	51 (12)
University degree second circle	170 (26)	49 (20)	121 (29)
Master's degree first circle	14 (2)	4 (2)	10 (2)
Master's degree second circle	15 (2)	3 (1)	12 (3)
Postlauream specialization	42 (6)	15 (6)	27 (6)
Doctoral degree	106 (16)	52 (22)	54 (13)
Occupational prestige (score range: 10.84–89.93)			
Mean (*SD*)	53.75 (20.98)	56.01 (22.07)	52.44 (20.23)
Range	10.84-89.93	10.84-89.93	10.84-89.93
Cultural Capital dimensions			
Participating (score range: 0-16)			
Mean (*SD*)	3.34 (3.09)	3.33 (3.26)	3.35 (2.98)
Range	0-13	0-13	0-13
Consuming (score range: 0-24)			
Mean (*SD*)	12.49 (5.11)	12.34 (5.61)	12.58 (4.80)
Range	1-24	1-24	1-24
Expert using (score range: 0-16)			
Mean (*SD*)	5.94 (2.85)	6.30 (2.92)	5.73 (2.79)
Range	0-14	0-13	0-14
Social Capital dimensions			
Bonding (score range: 1.00-5.00)			
Mean (*SD*)	2.97 (.54)	2.93 (.51)	2.99 (.55)
Range	1.17-4.75	1.71-4.67	1.17-4.75
Bridging (score range: 1.00-5.00)			
Mean (*SD*)	3.06 (.63)	3.11 (.68)	3.03 (.60)
Range	1.50-5.00	1.50-4.63	1.63-5.00

Cultural Capital. An updated version of the Scale of Cultural Capital (Balboni et al., 2019) was used that allows measuring also the CC that may be developed online. It is a self-report questionnaire composed of 14 items with a 5-point Likert scale (0 to 4) (e.g., "How many times a year do you attend/watch a theatre performance from the beginning to the end, whether in person, on television, or online (for example, YouTube, Netflix)?"). The questionnaire measures the three main dimensions of CC. *Participating* refers to participation and membership in community service, political, religious, and cultural groups/associations (four items), including those with activities exclusively online.

Consuming refers to cultural activities, such as visiting museums, exhibitions, or galleries; attending/watching theater performances, musical events, conferences, or seminars, whether in person, on television, or online; and having books or ebooks and reading them for pleasure (six items). *Expert using* refers to cultural activities that require technical skills and formal experience, such as reading books or ebooks for study or work; using foreign languages; using the Internet or social media to download material, looking for information, watching live events; attending courses; and writing and producing artwork or performing in concerts, plays or dance productions (four items). The score ranges from 0 to 16 for both

the participating and expert using CC dimensions and from 0 to 24 for the consuming dimension. The factorial structure of the updated version of the Scale of Cultural Capital was verified via confirmatory factor analysis (CFA) with 466 adults (69% females) aged 19 to 67 years (mean [SD] = 36.63[14.44]) with a high school diploma (50%) or a degree (47%). Good goodness of fit indexes were calculated: rCFI = .909, rRMSEA = .060 [CI = .050 - .70], SRMR = .052. The Cronbach's alpha for the present study was equal to .80 (McDonald's omega = .83) for the total scale and equal to .72, .78, and .55 for the dimensions participating, consuming, and expert using, respectively.

Social Capital. The Personal On-Offline Social Capital Brief Scale developed by Menardo et al. (2021), adapting the Personal Social Capital Scale (Chen et al., 2009; Wang et al., 2014), was used to measure offline and online SC. It measures the two SC dimensions, bonding and bridging, through four composite items each, including 11 and eight items, respectively (e.g., "Among your friends, how many can you trust?"), evaluated on a 5-point Likert scale (1 to 5). The first four composite items assess offline and online bonding SC with questions on size, trust and support received and quality/resources (broad connections and high reputation/influence) of informal networks (i.e., friends, work/study colleagues, people in the neighborhood, and online

contacts). The remaining four composite items evaluate offline and online bridging SC with questions on number, rights/interests represented, support received, and qualities/resources (broad social connections and extensive social influence) of community service, cultural, religious, political groups/associations a(including those with online activities). The score ranges from 1.00 to 5.00 for both bonding and bridging SC dimensions. The factorial structure was verified via CFA as well as convergent/divergent validity (Menardo et al., 2021). The CFA confirmed that the 19 items assess the two interrelated dimensions of bonding and bridging SC (four composite items each) (rCFI = .937; rRMSEA = .077 [CI = .054 - .101]; SRMR = .052). Moreover, both dimensions were predicted by perceived stress. The bonding dimension (and not bridging) was predicted by friends' social support, whereas the bridging dimension (and not bonding) was predicted by the sense of community. These results confirmed the convergent/divergent validity of the scale. The Cronbach's alpha for the present study was equal to .80 (McDonald's omega = .76) for the eight composite items and equal to .69 and .70 for the bonding and bridging four composite items, respectively.

The labels of each item of the Scale of Cultural Capital and each composite item of the Personal On-Offline Social Capital Brief Scale are presented in Table 2.

Table 2
Scale of Cultural Capital and Personal On-Offline Social Capital Brief Scale: Labels of each item or composite items, respectively, and mean (*SD*) scores obtained by all participants and the male and female subgroups

	Total (*n* = 654)	Males (*n* = 240)	Females (*n* = 414)
	Mean (*SD*)	Mean (*SD*)	Mean (*SD*)
Scale of Cultural Capital			
Printed book and e-book read for pleasure in a year	2.1 (1.2)	2.0 (1.2)	2.1 (1.1)
Printed book and e-book read for study/work in a year	2.0 (1.3)	2.0 (1.3)	2.0 (1.3)
Number of printed books at own home	2.5 (1.1)	2.4 (1.2)	2.5 (1.1)
Activities realized with the Internet or social media	1.9 (0.8)	1.9 (0.8)	1.9 (0.8)
Use of foreign languages	1.5 (1.3)	1.7 (1.3)	1.3 (1.3)
Theater performance attended in a year in person, on television, or online	1.7 (1.3)	1.7 (1.3)	1.7 (1.3)
Exhibition/museums/galleries visited in a year in person or online	2.0 (1.2)	2.0 (1.3)	2.0 (1.2)
Musical events attended in a year in person, on television, or online	2.2 (1.3)	2.2(1.3)	2.1 (1.2)
Courses/conferences attended in a year in person, on television, or online	2.1 (1.3)	2.2 (1.4)	2.1 (1.3)
High level cultural activities participated in	0.6 (0.7)	0.7 (0.8)	0.5 (0.7)
Participation in community service associations/groups activities	1.0 (1.1)	1.0 (1.2)	0.9 (1.0)
Participation in religious or political associations/groups activities	0.5 (0.8)	0.4 (0.8)	0.5 (0.9)
Participation in cultural associations/groups activities	0.5 (0.8)	0.5 (0.8)	0.5 (0.8)
Time spent participating in the activities of all these types of associations/groups	1.4 (1.4)	1.4 (1.4)	1.4 (1.3)
Personal On-Offline Social Capital Brief Scale			
Number of friends, colleagues/fellow students, and online contacts	2.8 (1.0)	2.8 (0.9)	2.9 (1.0)
Trust in friends, colleagues/fellow students, and online contacts	3.1 (0.7)	3.0 (0.7)	3.2 (0.7)
Support received from friends, neighbors, and online contacts	3.1 (0.7)	3.1 (0.7)	3.2 (0.7)
Broad connections with others and high reputation/influence of the previous groups	2.8 (0.6)	2.8 (0.6)	2.8 (0.6)
Number of community service and cultural associations/groups in own community	2.7 (1.1)	2.7 (1.2)	2.7 (1.1)
Rights and interests represented by community service and cultural associations/groups	3.1 (0.8)	3.2 (0.8)	3.1 (0.8)
Support received from community service and religious/political associations/groups	3.5 (0.7)	3.5 (0.8)	3.4 (9.7)
Broad social connectios and extensive social influence of the previous associations/groups	2.9 (0.7)	3.0 (0.8)	2.9 (0.7)

Note: The Scale of Cultural Capital items and the Personal On-Offline Social Capital Brief Scale composite items were rated on a 5-point Likert scale (0 to 4 and 1 to 5, respectively). See Balboni et al. (2019) and Menardo et al. (2021) for more details on the questionnaires

Social Desirability. The BIDR-6 (Bobbio & Manganelli, 2011) is made up of 16 items with a 6-point Likert scale and is used to evaluate the unconscious tendency to provide honest but positively biased responses, as well as the habitual and conscious presentation of a favorable public image. Individuals with a total score exceeding the 95th centile of the normative sample were identified as simulators. This scale has been reported to show adequate reliability and validity (Bobbio & Manganelli, 2011). The Cronbach's alpha for the present study was equal to .62.

Procedure

An online questionnaire including all instruments was generated using Google Forms. Two versions were available to counterbalance the order of the Scale of Cultural Capital and the Personal On-Offline Social Capital Brief Scale (CC-SC in 51% of cases, SC-CC in 49% of cases). The BIDR-6 and demographic questions were always placed at the end.

Data collection took place between October 2017 and November 2019. Trained researchers disseminated the online questionnaire via the most popular Facebook groups in Perugia and in the following services/institutes located in the municipality of Perugia: cultural, community service, religious, political, and recreational groups/ associations; public and private schools (from kindergarten to high school); public universities (Università degli Studi and University for Foreigners); student dorms; protective services; shops; and factories. The researchers did not know the aims of the study, were trained on reaching out to the participants and the information to provide them. The same written instructions were given to all the participants.

Data analysis

As shown in Figure 1, the path diagram of the structural equation model investigated age as an observed variable that predicted the two interrelated educational level and occupational prestige observed variables. Both educational level and occupational prestige predicted the two interrelated latent variables CC and SC. CC was measured with the observed variables corresponding to the measurement of participating, consuming, and expert using dimensions. SC was measured with the observed variables corresponding to the measurement of bonding and bridging dimensions.

The goodness of fit of this model was investigated through the structural equation modeling (SEM) R package Lavaan (Rosseel, 2012) using the maximum likelihood (ML) estimator. Goodness of fit was evaluated using the chi-square statistic (χ^2), the comparative fit index (CFI), the root-mean-square error of approximation (RMSEA) with associated 95% confidence intervals (CI), and the standardized root-mean-square residual (SRMR) (Schermelleh-Engel et al., 2003). Values higher than .95 for CFI, smaller than .05 for RMSEA, and smaller than .08 for SRMR suggest a reasonable fit (Hu & Bentler, 1999; Schermelleh-Engel et al., 2003). The reported models are the final models after a stepwise removal strategy of the statistically nonsignificant paths until only statistically significant paths remained (and modification indices suggested no relevant modifications). The model was verified for all participants and for males and females separately.

We also checked whether the model performed better than three alternative nested models obtained by collapsing in one latent variable educational level and occupational prestige (Model A1), CC and SC (Model A2), or both couple of variables (Model A3). We used ΔCFI to compare the alternatives models with the chosen model, and ΔCFI value > .01 indicated a deterioration in the fit (Cheung & Rensvold, 2002). Finally, Akaike's Information Criterion (AIC) was generated, with a lower value indicating a better fitting model (Schermelleh-Engel et al., 2003).

In accordance with Tabachnick and Fidell's (2013) suggestions, the presence of univariate outliers (e.g., participants with a z value higher than |3.29|) and multivariate outliers (e.g., participants for which the probability associated with the Mahalanobis distance was lower than .001) was checked for all observed variables. The normality of the univariate distribution was verified by computing asymmetry and kurtosis values, considering as appropriates the indices included in the range of -1.00 to 1.00. The normality of the multivariate distribution was verified using Mardia's test.

Results

Four univariate and one multivariate outliers were excluded. Table 2 and Table 1 present the means (*SD*) scores for each item or composite item and each dimension of the Scale of Cultural Capital and Personal On-Offline Social Capital Brief Scale. All observed variables were normally distributed (skewness and kurtosis were
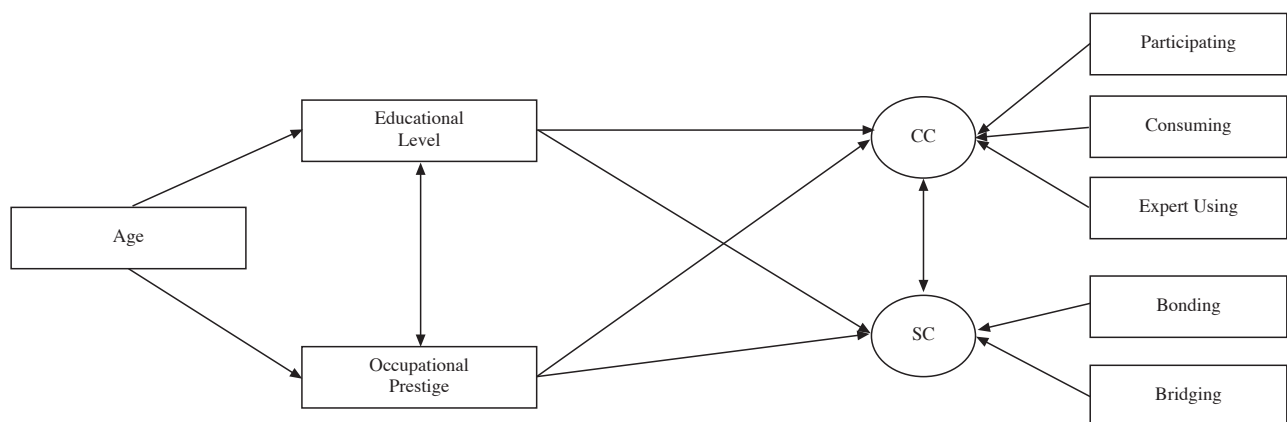

Figure 1. Path diagram of the hypothesized structural equation model of the relationships between age, educational level, occupational prestige, Cultura Capital (CC) and Social Capital (SC)

between approximately -1 and +1). The calculated Mardia's index was equal to 12.6 and was slightly higher than the critical value of 12 (equal to k(k+1) with k = 3), suggesting that the data were not multivariately normally distributed. However, given the large number of participants of the present study, the used ML estimator can be considered valid even when the assumption of normality is not respected (Pek et al., 2018).

The resulting model for all participants (*n* = 654) showed good fit indices: CFI = .97; RMSEA = .073 [CI = .053 - .095]; SRMR = 0.031; $\chi^2_{(11)}$ = 49.84, *p* < .001; AIC = 25,601. As shown in Figure 2, CC was well measured by the three dimensions participating, consuming, and expert using. SC was well measured by the two dimensions bonding and bridging. Age positively predicted educational level and occupational prestige and positively directly affected CC. Educational level and occupational prestige were positively correlated, and both affected CC positively and SC negatively. CC and SC were negatively correlated. Moreover, age was negatively correlated with the expert using CC dimension. The participating CC dimension and the bridging SC dimension

were negatively correlated. Age also had an indirect effect on CC through educational level (*β* indirect = .10; *SE* = .002; *p* < .001) and occupational prestige (*β* indirect = .07; *SE* = .004; *p* = .010) and on SC through only educational level (*β* indirect = -.05; *SE* = .001; *p* = .002). The explained variance of CC was 35%, and that of SC was 13%.

The model was replicated in the female subgroup (*n* = 414) with good indices: CFI = .97; RMSEA = .068 [CI = .042 -.096]; SRMR = 0.030; $\chi^2_{(11)}$ = 32.26, *p* = .001) (see Figure 3). Only the negative effect of occupational prestige on SC was not observed. Age had an indirect effect on CC through educational level (*β* indirect = .07; *SE* = .002; *p* < .001) and occupational prestige (*β* indirect = .09; *SE* = .005; *p* = .014) and on SC through only educational level (*β* indirect = -.06; *SE* = .002; *p* = .006). The explained variance of CC was 32%, and that of SC was 13%.

The resulting model had good indices also in the male subgroup (*n* = 240): CFI = .98; RMSEA = .073 [CI = .035 - .112]; SRMR = 0.036; $\chi^2_{(11)}$ = 25.25, *p* = .008 (see Figure 4). However, it was simpler, given that the negative effect of educational level on
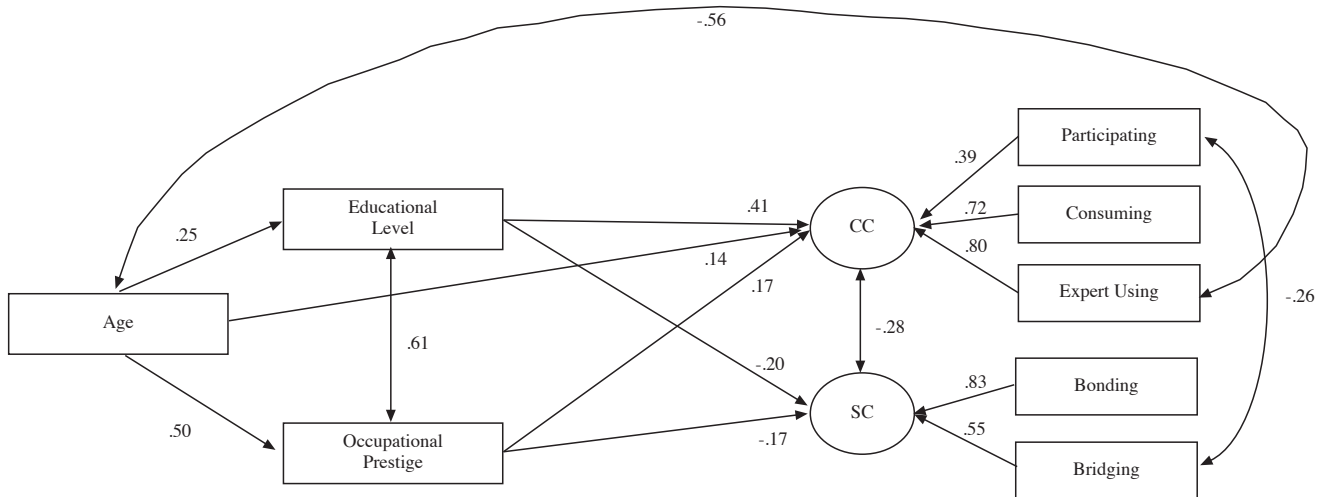

Figure 2. Structural equation model of the relationships between age, educational level, occupational prestige, Cultural Capital (CC) and Social Capital (SC) in all the participants (*n* = 654)
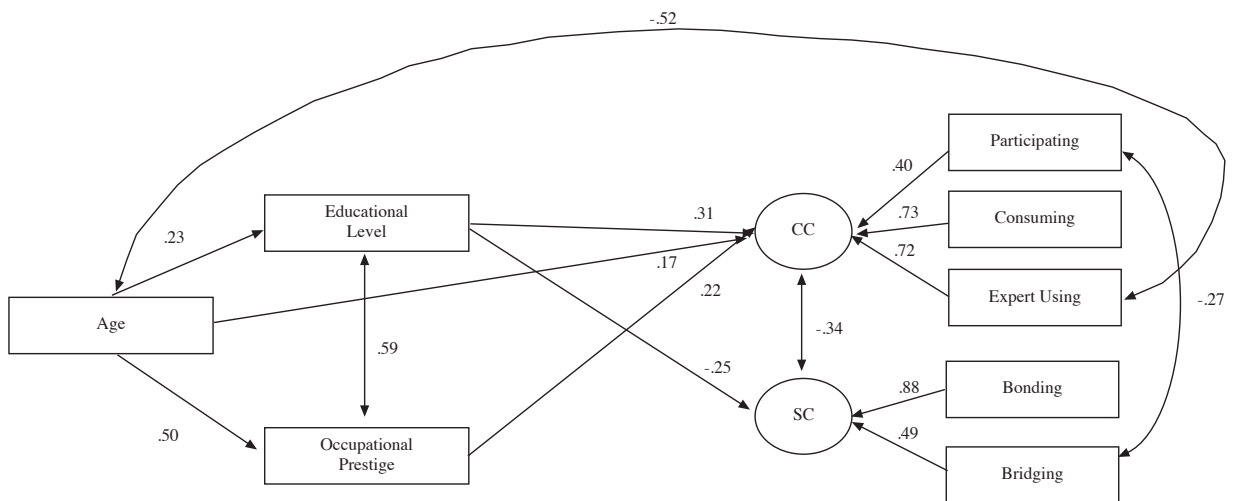

Figure 3. Structural equation model of the relationships between age, educational level, occupational prestige, Cultural Capital (CC) and Social Capital (SC) in the female subgroup (*n* = 414)
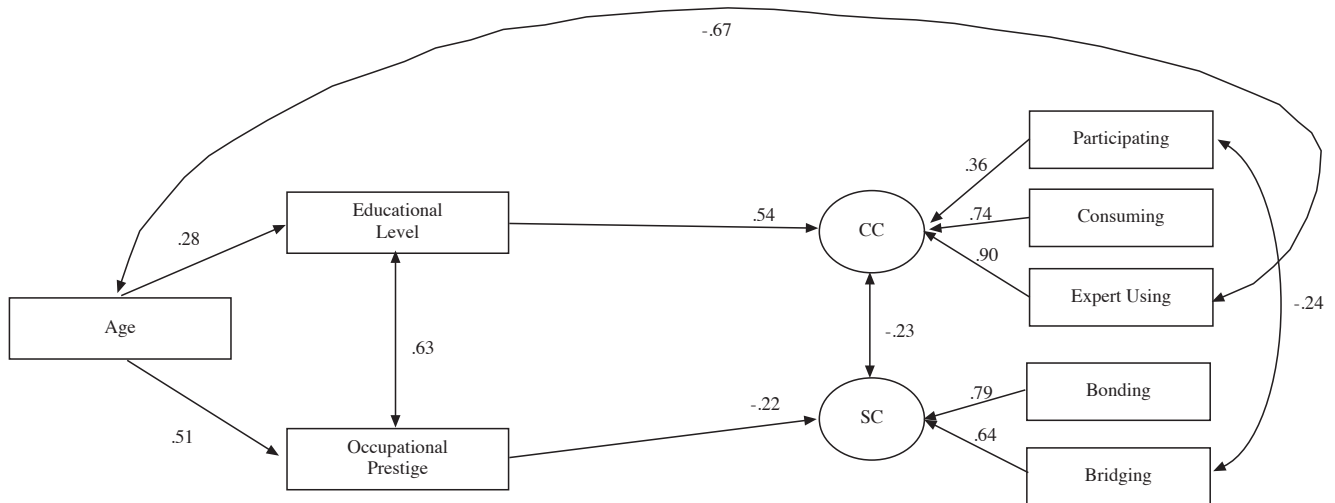
Figure 4. Structural equation model of the relationships between age, educational level, occupational prestige, Cultural Capital (CC) and Social Capital (SC) in the male subgroup (*n* = 240)

SC and the positive effects of age and occupational prestige on CC were not significant. Age had an indirect effect only on CC through educational level (β indirect = .15; *SE* = .004; *p* < .001). The explained variance of CC was 38%, and that of SC was 11%.

The verified alternative models all had worse indexes of goodness:

- Model A1: CFI = .90; RMSEA = .112 [CI = .096 - .129]; SRMR = 0.056; $\chi^2_{(16)}$ = 147.00, *p* < .001; AIC 25,688; ΔCFI = .069;
- Model A2: CFI = .79; RMSEA = .162 [CI = .146 - .178]; SRMR = 0.075; $\chi^2_{(17)}$ = 308.04, *p* < .001; AIC 25,846; ΔCFI = .178;
- Model A3: CFI = .82; RMSEA = .142 [CI = .127 - .158]; SRMR = 0.074; $\chi^2_{(18)}$ = 256.59, *p* < .001; AIC 25,793; ΔCFI = .149.

Discussion

This study aimed to develop a structural equation model representing how age affects the relationships between the components of SCL for males and females: SES, CC, and SC. Previous studies (Balboni et al., 2021; Bacherini et al., 2021; Menardo et al., 2017; Pellicci et al., 2015) have investigated how the three SCL dimensions affect individual behaviors. However, a structural equation model with all SCL dimensions has never been developed. Data were collected only in a medium-size town to keep the effect of the community in which individuals live on SCL constant.

The multidimensional structure of CC and SC was confirmed. Consistent with the literature (Balboni et al., 2019), CC is composed of three dimensions: participation in group activities, consumption, and expert using. Similarly, as already reported (Chen et al., 2009; Menardo et al., 2021), SC is composed of two dimensions, bonding and bridging SC.

In both males and females, age positively affects educational level, and occupational prestige, i.e., older individuals are more educated and have more prestigious occupations. The effect of

age on occupational prestige is consistent with previous studies (Cheng & Furnham, 2012; Tomlinson et al., 2018). In contrast, the positive effect of age on educational level is quite unexpected because younger people generally have a higher education level (ISTAT, 2011). This unexpected result may be due to the fact that Perugia is a university town; among the employed people, 73% of those aged 55 to 74 had reached at least the high school level.

Consistent with previous studies (Becker & Blossfeld, 2017; Cheng & Furnham, 2012; von Stumm et al., 2010), the two SES indicators, i.e., educational level, and occupational prestige, were positively correlated: higher occupational prestige was observed in people with higher educational levels. However, their effects on CC and SC were different for males and females. Educational level affected positively CC for both males and females and negatively SC for females only. Occupational prestige affected positively CC for females and negatively SC for males.

Regarding CC, people with higher educational levels and higher occupational prestige more frequently have or use cultural products, attend cultural events, or participate in cultural or community groups (e.g., Christin, 2012; De Graaf et al., 2000; DiMaggio, 2004; Roose, 2015; Willekens & Lievens, 2014). This confirms that schools and universities provide instruments and abilities to understand and appreciate cultural products (Bourdieu & Passeron, 1970). Furthermore, people with higher educational levels tend to have higher incomes (ISTAT, 2011), which allows them to acquire more CC during their lifetimes. The positive effect of occupational prestige on CC for females but not for males may be due to the fact that females are more likely than males to work in the culture production and educational sectors (Collins, 1988) and that these occupations are associated with a higher level of CC (Christin, 2012). Regarding SC, the negative effect of educational level for females and of occupational prestige for males is consistent with previous findings (Ajrouch et al., 2005): females with a higher education level tend to have less proximal networks, whereas males with a higher occupational level show a reduction in SC, especially late in life.

Consistent with the literature (DiMaggio & Mukhtar, 2004; Toepoel, 2011), we found in females a direct positive effect of

age on CC that was partially mediated by educational level and occupational prestige. Therefore, older women have more CC than younger people. This may be due to expanded cultural interest, at least in part due to the major economic resources derived from a higher educational level and occupational prestige. In males, the positive effect of age on CC appears to be mediated by educational level only; it seems that older males have a higher CC only if they have a higher educational level. Finally, consistent with the literature, age has a negative effect on SC that is mediated by educational level in females. That is, for older females, a higher educational level seems to lead to a lower level of SC.

In both males and females, we found a negative correlation between age and the CC expert user dimension. Younger people use foreign languages or the Internet (ISTAT, 2019) and create or perform art more than older people. As in previous studies (e.g., Toepoel, 2011), no difference in participating behavior was found.

Finally, a higher CC was associated with a lower SC and vice versa. In a previous investigation on the relationship only between CC and SC (Balboni et al., 2019), a positive effect between these two dimensions was found, but the participants were younger and had a lower educational level.

The global picture we have obtained with structural equation modeling allows us to understand that the three dimensions of SCL have a hierarchical relationship, with the interrelated indicators of SES, educational level and occupational prestige, affecting the interrelated dimensions of CC and SC. This hierarchical relationship must be properly taken into account in studies on the effects of SCL on human behavior. Within this global picture, the system of relationships is simpler for males than females, with educational level being less relevant to the other constructs in males.

The present study presents some limitations. First, the convenience sampling procedure of the participants. Therefore, to reach out to individuals with sociodemographic characteristics similar to the general population, we disseminated the survey not only on social networks, which presents some critical issues (Wright, 2005; Thompson et al., 2003), but also on several local institutions/services with different users: cultural, community service, religious, political, and recreational groups/associations; public and private schools and universities; student dorms; protective services; shops; and factories. In this way, except for educational level, it was possible to collect a sample with age and gender similar to the Italian general population (ISTAT, 2021) and heterogeneous for the occupation. Perugia, where the survey was conducted, is a university city with a high percentage of individuals with high levels of education and occupational prestige. Keeping the context constant makes the relationships found more valid. However, the results cannot be generalized to participants with

a lower educational level and less occupational prestige. Future studies should investigate the model in different contexts (i.e., communities with lower SES).

Moreover, several strategies were followed to standardize test administration across sites and to control measurement errors (e.g., training researchers, counterbalancing the order of the questionnaires, standardized written instructions for the participants, excluding potential simulators). However, the situation and the individuals' conditions when filling out the questionnaires were not controllable with an online survey.

Finally, it is possible that during life, SCL dimensions influence each other in a circular way, starting with parental SCL. Parents orient the development of CC and SC. Adolescents' CC and SC influence their final educational level and occupational choice. Adults' occupational prestige and educational level influence their own CC, SC, and those of their sons and daughters (if they exist). To investigate the interactions across generations, longitudinal data are needed.

Despite these limitations, this study is novel in that it elucidates the relationships among SCL dimensions in adulthood. Interestingly, we highlight that education level for females and occupation prestige for males can negatively impact the development of SC, whereas a higher SES is usually associated with greater opportunities. Instead of a unique measure of SES, researchers should investigate the effect of SES dimensions separately.

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