The significance of adolescent social competence for mental health in young adulthood

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ABSTRACT

Introduction: Social competence is one of the primary components of mental health development. This study examines the associations between adolescent competence and its components, and adulthood adaptive functioning and internalizing and externalizing problems.

Methods: As part of a longitudinal study that begun in Finland in 1989, 191 mothers, 126 fathers and their 192 16–17-year-old adolescent children completed a standardized questionnaire, the Child Behavior Checklist or the Youth Self Report, to analyse the adolescents' total competence and its subscales (activity, social skills and school performance). Ten years later, the former adolescents completed the corresponding Adult Self Report questionnaire to assess adaptive functioning as well as internalizing and externalizing symptoms.

Results: Better total competence or social skills in adolescence were associated with a good level of adaptive functioning and a low level of internalizing symptoms in young adulthood. Better scores in school performance subscale according to the parents' reports were associated with a low level of externalizing symptoms in young adulthood. Together with total competence and social skills, concurrent partner relationship status was associated with optimal outcomes.

Conclusion: This study supports earlier findings that better social competence in adolescence is associated with fewer internalizing problems in young adulthood, and indicates a longitudinal association between adolescent competence and adult adaptive functioning. It is important to study whether interventions supporting adolescents' competence could promote mental health in their subsequent development into young adulthood.

1. Introduction

In line with a developmental psychopathology perspective (Rutter & Sroufe, 2000), some studies indicate that one of the primary components of healthy functioning and development is social competence, which describes how an individual gets along with other people and forms close relationships (Burt, Obradovic, Long & Masten, 2008). **Social competence** consists of social, emotional and cognitive elements, and it reflects the individual's developmental level (Masten & Curtis, 2000;

Zigler & Phillips, 1961). The specific indices of social competence vary with age and are linked to developmental tasks. From adolescence to young adulthood, these tasks include becoming independent from the childhood family and establishing a social network (Erikson, 1994). Such tasks demand many psychological resources, and this increases the risk for mental health symptoms in young adulthood (Bijl, De Graaf, Ravelli, Smit & Vollebergh, 2002; Kessler, Ronald et al., 2005; Suvisaari et al., 2009). Academic or cognitive competence is in some instances considered as a separate construct. In the quadripartite model (Dubois &

Felner, 1996), however, cognitive skills and abilities, such as academic performance, are seen as one of the main aspects of social competence. **Adaptive functioning**, on the other hand, refers to a person's ability to cope with the demands of different environments through active modifications. Adaptation includes skills in communication, socialization, daily living and motor functioning (Bornstein, Hahn & Suwalsky, 2013). The assessment of adaptive functioning is hypothesized to reflect "aspects of functioning that are important for successful adaptation in various areas" (Achenbach & Rescorla, 2003, p. 96). Both social competence and adaptive functioning represent strength based aspects into mental health (Achenbach & Rescorla, 2001).

Social and academic competence are shown to be quite stable from childhood to adolescence (Bornstein et al., 2013) and from adolescence to young adulthood (Obradovic et al., 2010). From a developmental perspective, some studies indicate that poorer social competence in adolescence is associated with more internalizing problems in young adulthood (Obradovic, Burt & Masten, 2010), but not with more externalizing problems (Burt et al., 2008). On the other hand, adaptive functioning is not as stable during the transition into adulthood: Obradovic and colleagues (2006) found five distinct pathways of adaptation from adolescence to young adulthood. These pathways were associated with different mental health risk factors.

Mental health problems include behavioural, emotional and social problems, which are widely classified as internalizing and externalizing symptoms (Achenbach, Ivanova, Rescorla, Turner & Althoff, 2016). Internalizing symptoms involve problems that are mainly within the self, like depression and anxiety. Externalizing symptoms comprise mainly problems with other people and social norms, like aggressive or rule-breaking behaviour (Achenbach & Rescorla, 2003). In several studies, an inverse association between competence and psychopathology has been noticed both longitudinally and concurrently. The effect probably works in both directions: psychopathology undermines competence and poorer competence leads to psychopathology. It is also possible that some other factors have an impact on both symptoms and competence, like socioeconomic status or negative life events (Masten & Curtis, 2000; Masten et al., 2005). Many longitudinal studies have indicated an association between poor social competence and more internalizing and to some extent also externalizing problems in childhood (Cole, Martin, Powers & Truglio, 1996) and adolescence (Bornstein, Hahn & Haynes, 2010; Burt & Roisman, 2010; Hymel, Rubin, Rowden & Lemare, 1990; Mesman, Bongers & Koot, 2001), but fewer studies have investigated the longitudinal associations between adolescent competence and adulthood symptoms. Furthermore, many of the studies on social competence have been conducted in the USA, and there is less longitudinal data from Europe.

Obradovic and colleagues (2010) have examined competence and psychopathology in a longitudinal study covering 20 years. They found that poorer social competence in childhood was associated with more internalizing problems in adolescence. In addition, they found that poorer social and academic competence in emerging adulthood was associated with internalizing symptoms. From adolescence to young adulthood, poor social competence was associated with internalizing problems only for males (Obradovic et al., 2010). Significant developmental cascades (Cox et al., 2010) were also revealed: childhood externalizing problems undermined adolescence academic achievement and were linked to internalizing problems in young adulthood and poorer childhood social competence with poorer work competence in emerging adulthood (Masten, Desjardins, McCormick, Kuo & Long, 2010). However, there did not appear to be longitudinal connections between social competence and externalizing symptoms (Burt et al., 2008). In addition, a study by Stepp and colleagues (2011) found that better social competence at age 13 had a direct effect on higher educational attainment over 12 years later in boys at risk for antisocial behaviour. However, there are relatively few studies on the longitudinal association of social competence and mental health symptoms from adolescence to adulthood. Social factors in adolescence are potential

risks for mental health problems, and understanding them is important for effective prevention.

Social competence may be linked to mental health symptoms and adaptive functioning together with sociodemographic factors. According to previous studies, there are significant differences in the lifetime prevalence of psychiatric disorders between the genders: men have a higher risk for externalizing symptoms, like substance use disorders and antisocial personality, while women have a higher risk for internalizing symptoms, like mood and anxiety disorders (Bijl et al., 2002; Eaton et al., 2012; Kessler et al., 1994; McLean, Asnaani, Litz & Hofmann, 2011; Piccinelli & Wilkinson, 2000). Socioeconomic status is also significantly associated with psychiatric disorders, the prevalence being higher in lower-level groups (Dohrenwend, 1990; WHO International Consortium in Psychiatric Epidemiology, 2000). In particular, the level of education is related to depression (Freeman et al., 2016) and other psychiatric disorders (Suvisaari et al., 2009). According to the interactionist model of human development (Conger & Donnellan, 2007), both social causation and social selection are components of a dynamic interplay where socioeconomic status has an impact on development, and individual characteristics have an impact on socioeconomic status. Marital status can also affect the outcome; in some studies, married or cohabiting persons have lower rates of psychiatric disorders than single individuals (Suvisaari et al., 2009; WHO International Consortium in Psychiatric Epidemiology, 2000).

To our knowledge, the association between social competence in adolescence and adaptive functioning in young adulthood has not been studied before. In this study, we investigated the association between competence and its subscales in adolescence, and both adaptive functioning and mental health symptoms in adulthood in a European longitudinal, population-based sample.

2. Aim

The aim of this study was to replicate the earlier finding concerning the association between social competence in adolescence and internalizing (but not externalizing) problems in young adulthood. A novel approach was to examine the potential association between social competence in adolescence and adaptive functioning in adulthood. Our hypothesis was that better social competence and its components in adolescence according to adolescents' and parental reports would be associated with a lower level of internalizing symptoms and better adaptive functioning according to young adults' reports ten years later. The potential contribution of sociodemographic factors was also studied.

3. Materials and methods

3.1. Study design

This study includes two data collection points of a longitudinal study that began in Tampere, Finland, in 1989. The original sample of first-time mothers was collected from Tampere maternity health clinics in 1989–1990 (T1), and it consisted of 349 normal population mothers expecting their first child (Tamminen, 1990). The data of the two latest data collection time points (T7 = firstborns' adolescence in 2006, T8 = firstborns' adulthood in 2016) were used in this study. The sample flow and characteristics are described in detail elsewhere (Korhonen, Luoma, Salmelin & Tamminen, 2012, 2014).

3.2. Participants

At data collection point T7, 327 mothers (and through them fathers, when available) and 328 16–17-year-old adolescents (one pair of twins) were invited to the study. Those members of the original sample whose mother had refused or been otherwise excluded (e.g. due to the death or serious illness of the mother or firstborn) at some previous time point

were excluded at T7 as well. The questionnaires were returned by 59% ($n = 192$) of the adolescents (55% females, mean age 16.7 years, SD 0.2 years), 58% ($n = 191$) of the mothers and 39% ($n = 126$) of the fathers. At data collection point T8, questionnaires were sent to 239 firstborns, now 27-year-old young adults, who themselves (or their mothers) had participated in at least one previous stage of the longitudinal study and who themselves (or their mothers) had not refused or been excluded at some previous stage. The questionnaires were returned by 60% ($n = 144$) of the invited, which covered 75% of the respondents of the previous data collection point.

The sociodemographic data were collected from the young adults; they included gender, family type (living with a partner or not), having children or not, employment and family socioeconomic status (SES). SES was determined by the occupation of the main breadwinner of the family, as reported by the young adults. We used the Classification of Socio-Economic Groups 1989 (Statistics Finland, 1989) and dichotomised the variable into higher and lower SES. Higher SES included entrepreneurs and upper white-collar employees. Lower SES included lower white-collar employees, workers, students, pensioners and others. The characteristics of the sample are shown in Table 1.

Comparison of the respondents with the baseline data revealed that significantly more males were included in the drop-out group than in the respondent group ($p < 0.001$). There were no statistically significant differences between the respondents and nonrespondents at T8 concerning maternal age, marital status and education at T1.

When the respondents at both T7 and T8 were compared with the respondents only at T7, the respondents who had participated at both time points showed better competence scores at T7 according to the mothers ($p < 0.001$) and fathers ($p = 0.021$), but according to the adolescents' reports, the difference lacked statistical significance at the $p < 0.05$ level ($p = 0.074$).

Table 1
Sociodemographic characteristics of the young adults at data collection point T8.

Characteristic	Proportion %
Gender	($n = 144$)
Female	62
Male	38
Living with a partner[1]	($n = 143$)[4]
Yes	67
No	33
Children	($n = 144$)
Yes	21
No	79
Employment[2]	($n = 144$)
Employed	67
Not employed	33
Family SES[3]	($n = 142$)[4]
Upper	39
Lower	61
Age, mean (SD)	27.0 (0.3)

[1] Living with a partner/yes includes family type options: living with a partner, living with a partner and a child or children, and living in a newly formed family. Living with a partner/no includes options: living alone, living as a single parent, and other.
[2] Employed: includes participants working full-time or part-time and entrepreneurs. Not employed: includes participants who are at home on parental leave, students, pensioners, and others.
[3] Family SES is determined by the occupation of the main breadwinner of the participant's family. Upper SES includes entrepreneurs and upper white-collar employees. Lower SES includes lower white-collar employees, workers, students, pensioners, and others.
[4] Due to missing information.

3.3. Measures

At T7, the adolescents completed the Finnish translation of the **Youth Self Report (YSR)** questionnaire (Achenbach, 1991a). The YSR contains items for adolescents to assess their **social competence**. These items collect information about the amount and quality of involvement in specific activities and relationships. They are grouped into **three subscales: activities, social skills and school performance**. The activities scale includes sports, other recreational activities, jobs and chores. The social skills scale concerns group activities and social relationships. The school performance scale includes only one item, performance ratings in academic subjects, and it is therefore not analysed as a separate scale. The total competence score is calculated as the sum score of these three subscales.

The mothers and fathers completed the corresponding **Child Behavior Checklist (CBCL)** questionnaires (Achenbach, 1991b). The CBCL contains similar questions for parents to record their child's **social competence**. Apart from the YSR, the CBCL school performance scale also includes reports of special remedial services, grade repetition and other school problems (answered yes/no), and it is examined as a separate scale. The same subscales and total competence score as in the YSR are applied.

At T8, the young adults completed the Finnish translation of the **Adult Self Report (ASR)** questionnaire (Achenbach & Rescorla, 2003). The ASR questionnaire is similar to the YSR but intended for adult self-reporting. ASR is used to assess the adaptive functioning and emotional/behavioural problems of adults (Achenbach & Rescorla, 2003). The **mean adaptive functioning** score always contains sections about family and friends. The sections concerning a spouse or partner, job and education are included if the particular issue has been relevant to the person's life during the last six months. Mental health problems are assessed by 123 items. Each item is scored on a three-step scale from 0 (item not true) to 2 (item very true or often true) and categorised into two broad groups of symptoms. The internalizing problems scale includes items concerning anxious/depressed symptoms, withdrawal and somatic complaints. The externalizing problems scale includes items on aggressive behaviour, rule-breaking behaviour and intrusive problems.

The raw sum scores of the YSR, CBCL and ASR subscales were transformed into normalized T scores, as described by Achenbach (1991a, 1991b) and Achenbach and Rescorla (2001). The standardized T scores compare a participant's score with the distribution of scores in a normative sample and enable the comparisons of scales with each other (Achenbach & Rescorla, 2001). In nonreferred samples, mean T scores are close to 50 and the SD is close to 10 (Achenbach 1991a, 1991b, Achenbach & Rescorla, 2001). Internalizing and externalizing problem T scores below 60 are considered to be within normal range, scores of 60–63 are borderline, i.e. high enough to be of concern, and scores ≥ 64 indicate sufficient problems to be of clinical concern (Achenbach & Rescorla, 2001). For adaptive functioning, the norms are less well established. The recommended borderline and clinical cut-off points for mean adaptive functioning (3rd to 7th percentile of the US normative sample) disentangle smaller groups of participants than the cut-off points for internalizing and externalizing problems (T score of 60, representing the 84th percentile) (Achenbach & Rescorla, 2003). Therefore, we decided to use the lower quartile ($T \leq 42$) as a cut-off point to be able to form comparable group sizes for both low adaptive functioning and high problem levels. For multivariate modelling, we decided to use logistic regression in order to focus on the contrasts between poor vs at least average adaptive functioning and a high vs low internalizing and externalizing symptom level in adulthood.

The CBCL and YSR questionnaires are widely used, established questionnaires with ample international data on their validity and reliability. The developers of the method report Cronbach alphas of 0.75 and 0.79 for YSR and CBCL total competence, respectively (Achenbach & Rescorla, 2001).

3.4. Ethics

Permission for the first four study stages (T1–T4) was granted by the Ethics Committee of the City of Tampere. Study stages T5–T7 were approved by the Ethics Committee of Pirkanmaa Hospital District, and the latest study stage (T8) was approved by the Regional Ethics Committee of the Expert Responsibility Area of Tampere University Hospital (ref number R15115). Written informed consent was obtained from the mothers at study stages T1–T7 and additionally from the firstborns at stages T7 and T8.

3.5. Statistical analysis

The normalized T scores for T7 total competence, T8 adaptive functioning, T8 internalizing problems and T8 externalizing problems are described by means and standard deviations (SD). For multivariate modelling, we used logistic regression as the outcome variables were dichotomous. For logistic regression, the adulthood T scores for internalizing problems and externalizing problems were dichotomised using the lower cut-off point of 59/60, thus including the groups with problem levels of at least borderline clinical significance in the high symptom level group. For mean adaptive functioning, T scores above 42 were considered to indicate a good or average and those of 42 or below a poor adaptive functioning level.

Each of the three dichotomised variables above was used separately as the response variable in the regression analyses, predicting an average or good level of adaptive functioning, and a low level of internalizing and externalizing problems in adulthood. As for explanatory variables, continuous total competence and its subscale (activities, social skills and school performance) scores of all three informants in adolescence were first entered, one at a time (unadjusted models). Then, if the unadjusted model showed a statistically significant association with the outcome, the analyses were repeated, adding all sociodemographic variables shown in Table 1 as explanatory variables (adjusted models). We used the enter method for the unadjusted models and forward LR method for the adjusted models.

Complete case analysis was used, i.e., only participants with all required data available at both time-points, were included (*n* = 144). P-values up to 0.05 were considered statistically significant, but values up to 0.10 are reported. The analyses were performed with SPSS 25.0.

4. Results

At T8, 27% (*n* = 39) of the respondents scored below the mean adaptive functioning cut-off, 19% (*n* = 27) scored above the internalizing problems cut-off, and 12% (n = 17) scored above the externalizing problems cut-off.

4.1. Adolescent total competence and adaptive functioning in adulthood

In the unadjusted regression analyses, better total competence in adolescence according to maternal and paternal reports and social skills subscale scores according to all informants showed statistically significant associations with good adaptive functioning (Table 2).

Thus, each of these five models were repeated, adjusting for background variables. In the models with mothers and fathers as informants, adolescent total competence remained in the models as a significant predictor of an average or good level of adaptive functioning in adulthood even when the concurrent background factors were controlled for (Fig. 1). Of the subscales, social skills in adolescence according to all informants were associated with an average or good level of adaptive functioning in adulthood. Concurrent pair relationship (living with a partner), together with total competence and social skills in the maternal informant models and social skills in the adolescent informant model, also remained in the model.

Table 2
Logistic regression models predicting average or good adaptive functioning (T score > 42) or a normal (low) level of internalizing and externalizing problems (T score ≤ 59) according to the young adults' self reports (ASR). Separate models were constructed for each informant on adolescent total competence and its subscales. Only results showing statistical significance are presented (OR = Odds Ratio, 95% CI = 95% Confidence Interval, CBCL = Child Behavior Checklist, YSR = Youth Self Report).

Outcome at T8 Informant at T7 (Model)	Explanatory variable	Unadjusted		
		OR	95% CI	p
Mean adaptive functioning				
Mother	Total Competence (CBCL)	1.1	1.0–1.1	0.015
Mother	Social Skills (CBCL)	1.1	1.0–1.1	0.021
Father	Total Competence (CBCL)	1.1	1.0–1.1	0.028
Father	Social Skills (CBCL)	1.1	1.0–1.1	0.016
Adolescent	Social Skills (YSR)	1.0	1.0–1.1	0.049
Internalizing problems				
Mother	Total Competence (CBCL)	1.1	1.0–1.1	0.007
Mother	Social Skills (CBCL)	1.1	1.0–1.2	0.008
Mother	School Performance (CBCL)	1.1	1.0–1.2	0.028
Father	Total Competence (CBCL)	1.2	1.0–1.3	0.009
Father	Social Skills (CBCL)	1.1	1.0–1.2	0.001
Father	School Performance	1.1	1.0–1.2	0.041
Externalizing problems				
Father	School Performance (CBCL)	1.1	1.0–1.3	0.041
Mother[1]	School Performance (CBCL)	1.2	1.0–1.3	0.018

[1] Includes only cases with both parents' CBCL reports.

4.2. Adolescent social competence and mental health symptoms in adulthood

According to the unadjusted models, higher mother or father-reported scores for total competence or social skills subscale in adolescence were statistically significantly associated with a nonclinical level of internalizing problems in young adulthood (Table 2). The YSR scores for total competence or its subscales were not statistically significantly associated with any of the symptom outcomes. Total competence in adolescence and externalizing symptoms in adulthood were not statistically significantly associated, regardless of the informant. Those young adults with father-reported higher scores in school performance subscale in the CBCL at T7 had statistically significantly more often a nonclinical level of externalizing symptoms at T8. Including only those adolescents whose father had participated, there was a significant association even according to the CBCL completed by mothers. However, in the whole sample the association was not statistically significant.

When adjusting for background variables, higher total competence and social skills subscale scores together with male gender and a paired relationship status remained in most of the models with parents as informants at T7, predicting a nonclinical level of internalizing problems. For a low level of externalizing problems, only parental reports of school performance remained in the models.

5. Discussion

The aim of this study was to investigate the associations between adolescent social competence and subsequent psychosocial adjustment in adulthood after a 10-year follow-up. According to the developmental cascade model, we expected to find that better social competence would be associated with both adaptive functioning and particularly internalizing symptoms in adulthood.

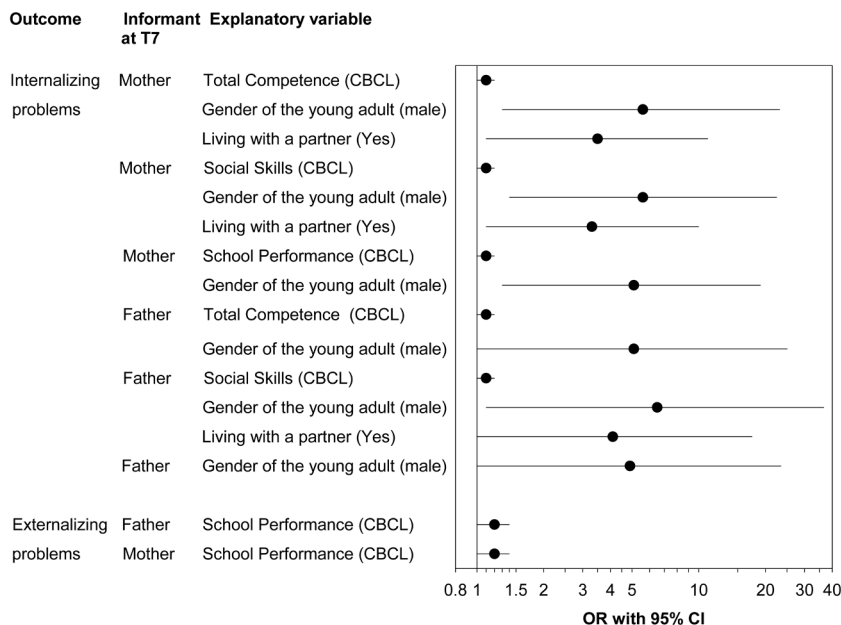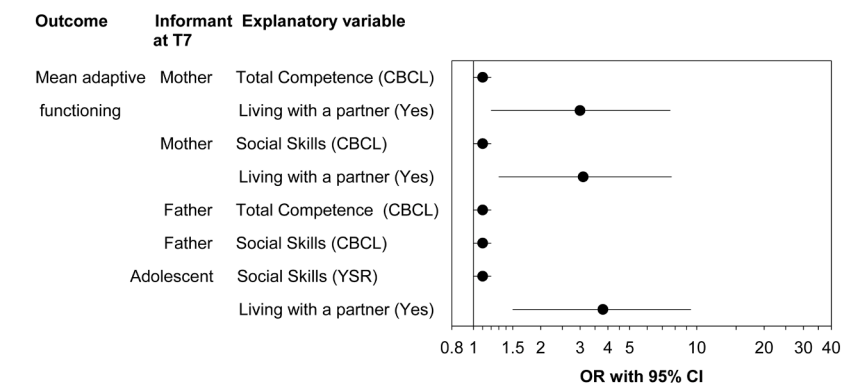The most significant finding of this study was that better social

Outcome | **Informant at T7** | **Explanatory variable**

Mean adaptive functioning	Mother	Total Competence (CBCL)
		Living with a partner (Yes)
	Mother	Social Skills (CBCL)
		Living with a partner (Yes)
	Father	Total Competence (CBCL)
	Father	Social Skills (CBCL)
	Adolescent	Social Skills (YSR)
		Living with a partner (Yes)

Fig. 1. Results of adjusted logistic regression models (forward LR) predicting average or good adaptive functioning (T score > 42) or a normal (low) level of internalizing and externalizing problems (T score ≤ 59) according to the young adults' self reports (ASR). Separate models were constructed for each informant on adolescent total competence and its subscales. Sociodemographic variables were included in the adjusted models together with total competence or its subscore, when it showed a statistically significant association with the outcome in the unadjusted model: gender (male/female), living with a partner (yes/no), biological children (yes/no), employment (employed/not employed), family SES (higher/lower). (OR = Odds Ratio, 95% CI = 95% Confidence Interval, CBCL = Child Behavior Checklist, YSR = Youth Self Report).

Outcome | **Informant at T7** | **Explanatory variable**

Internalizing problems	Mother	Total Competence (CBCL)
		Gender of the young adult (male)
		Living with a partner (Yes)
	Mother	Social Skills (CBCL)
		Gender of the young adult (male)
		Living with a partner (Yes)
	Mother	School Performance (CBCL)
		Gender of the young adult (male)
	Father	Total Competence (CBCL)
		Gender of the young adult (male)
	Father	Social Skills (CBCL)
		Gender of the young adult (male)
		Living with a partner (Yes)
	Father	Gender of the young adult (male)
Externalizing problems	Father	School Performance (CBCL)
	Mother	School Performance (CBCL)

competence in adolescence (assessed by mothers and fathers) was associated with better adaptive functioning and fewer internalizing problems in young adulthood, which supports our hypothesis. The result supports the earlier findings indicating that social competence is significant for subsequent mental health development (Burt et al., 2008; Obradovic et al., 2010). The association between social competence and subsequent outcome has been more frequently reported from childhood to adolescence, but it seems to apply also from adolescence to adulthood. The same kind of association from emerging adulthood to young adulthood (with a gap of 10 years) was also noticed by Burt and colleagues (2008). Previously Masten and colleagues (2010) found that childhood social competence was associated with work competence in emerging adulthood and work competence showed considerable stability in early adulthood.

As an interesting result, higher scores in one subscale of total competence, namely school performance, were associated with a lower level of externalizing symptoms in young adulthood. Previous studies have found that adolescent or emerging adulthood academic competence shows associations with fewer internalizing but not externalizing problems in young adulthood (Masten et al., 2005; Obradovic et al., 2010). A review on childhood factors predicting mental disorders relevant to the European population showed that poor school performance and low levels of educational achievement are associated with adulthood anxiety, depression and schizophrenia (Fryers & Brugha, 2013). However, school performance might be more of a contributory factor than a causal factor (Fryers & Brugha, 2013). The externalizing

problems scale also includes, e.g., ADHD and attention problems, which may influence school performance; they are known to produce rather pervasive deficits.

The results of the current study indicate that gender, relationship status, job and socioeconomic status had statistically significant associations with mental health problems, which concurs with earlier findings. Unexpectedly, employment and SES did not essentially modify the association between lower school performance and externalizing symptoms in the regression models.

Better social skills were associated with low levels of internalizing problems together with concurrent relationship status, which emphasizes the importance of close relationships. The mechanisms explaining the association between relationship status and adaptive functioning may be interactional: young adults with good social skills and good adaptive functioning may find it easier to form relationships, while conversely, loneliness may undermine a young person's judgement of his or her adaptive functioning. The finding that women reported more internalizing problems compared to men is in line with previous literature.

The associations between social competence and school performance in adolescence and adjustment in adulthood were compatible between the mothers' and fathers' reports. On the other hand, remarkably, there were no significant associations between total competence according to YSR and subsequent mental health symptoms. According to the review by De Los Reyes and colleagues (2015), assessments of mental health issues correlate more strongly when they concern more observable or

externalizing issues and the informants observe the child from the same setting (e.g. mother's and father's reports) than when the informants are a parent and child. In our study, the method of assessing adolescent total competence in the parental reports was based on observing external issues, i.e. the combination of activities, social skills and school performance, and therefore both parents' assessments reflect the external view of the adolescent's competence. One possible explanation for this difference between informants is the developmental stage of adolescence, when the identity of the young individual is in a rapidly changing state. It is possible that the young person's view of his or her competence is changing to match the parental views when he or she is reaching the transition into adulthood, and dramatic changes in developmental paths may occur at this stage of emerging adulthood (Obradovic et al., 2006). Concerning the YSR, only the adolescent's view of his or her social skills was associated with mean adaptive functioning in adulthood.

The strengths of this study include the long follow-up time from adolescence to adulthood and the extensively used questionnaires. Corresponding questionnaires were used during both stages, and therefore they can be considered comparable. The use of a multi-informant approach (the information was obtained from mothers, fathers and adolescents alike) can also be considered a strength of the study.

The limitations of this study include the relatively small sample size and the rather low number of symptomatic young adults. One reason for this is the long follow-up time, which naturally increases the number of drop-outs. The use of complete case analysis may also have affected the representativeness of the sample: the more distressed young people may have been more susceptible to give incomplete responses or to drop out of the study and the sample may be enriched with participants with fewer problems. However, the sample size in this study is comparable to earlier longitudinal studies on social competence (e.g. Bornstein et al., 2010; Obradovic et al., 2010) and the rates of symptomatic young adults are comparable to those in the previous study by Suvisaari and colleagues (2009). The small sample size and the drop-out of male subjects in particular between the study stages may have resulted in some associations not quite reaching statistical significance. Due to these limitations, the results should be confirmed in larger samples.

6. Conclusion

This study supports the earlier findings that adolescent competence is a significant factor for mental well-being in adulthood. More studies are needed considering the continuity of social competence and problems from childhood to adulthood, as well as the risk and protective factors influencing that development. More research is also needed to investigate whether interventions supporting children and adolescents in social skills, school performance and activities promote mental health in their subsequent development into young adulthood.

Declaration of Competing Interest

None.

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