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Social capital, social support and perceived stress in college students: The role of resilience and life satisfaction

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Abstract

The study examined whether online and offline social capital and offline social support are associated with less perceived stress in 403 undergraduate Greek college students through the mediating role of resilience and life satisfaction. Gender differences were also explored. A path analysis explored the relationships among the study variables and multi-group analysis explored gender differences. Perceived stress was predicted indirectly by offline social support and offline bonding social capital through resilience and life satisfaction and directly by online bonding. However, offline bonding was associated with reduced resilience and life satisfaction, whereas social support was associated with increased levels of both. Interestingly, whereas offline bonding was associated with reduced perceived stress through resilience for women, for men it occurred through life satisfaction, and it was primarily resilience for women and life satisfaction for men that predicted reduced perceived stress. It was concluded that different personal ties/relationships are associated with perceived stress through diversified pathways and the pathways are different for men and women. Offline social support between closely tied persons is positively associated and offline bonding is negatively associated with the inner resources for a person to cope with stress, whereas online bonding is beneficial in directly decreasing stress.

KEYWORDS
A path model, close relationships, gender differences, mental health, perceived stress, social relationships, stress reduction

1 | INTRODUCTION

For most students, college years are extremely demanding as they need to cope with various stressors, strive for independence and autonomy from their family of origin and at the same time, build new relationships. Whereas short-term stress may have a motivating effect, long-term stress, if not addressed, can have detrimental effects, such as academic (e.g., poor performance and dropping-out) and personal ones (e.g., mental health disorders and psychosocial maladjustment; Yoo, 2018). Therefore, understanding the social resources that may mitigate stress in college students is imperative.

Research on students' stress has paid little attention to social determinants, such as social capital and social support (see literature review) and the possibility that they may impact differently upon stress needs to be examined. As (a) social capital and social support have been associated with reduced stress (Foy, Dwyer, Nafarrete, Hammoud, & Rockett, 2019), (b) social capital and social support have been associated with higher resilience and life satisfaction (McKibbin et al., 2016; Singh & Singh, 2020) and (c) resilience and life satisfaction have been negatively associated with reduced stress (Abolghasemi & Varaniyab, 2010; Moksnes, Eilertsen, Ringdal, Bjørnsen, & Rannestad, 2019), it seemed

reasonable to assume that social capital/social support will be associated with perceived stress through resilience and life satisfaction.

Therefore, the current study explores a possible path through which college students' social capital and social support are associated with stress reduction through resilience and life satisfaction. Since social support and social capital are context-specific (Dunkel-Schetter & Brooks, 2009) and different settings may result in different outcomes, this association was explored in *offline* (or real-life) versus *online* (or internet/virtual-life) contexts. Gender differences were also explored, as there is limited research on gender's role on social support and well-being (Kafetsios, 2007). In terms of the social capital, to the authors' knowledge, only a modicum of research has examined the buffering effect of its two components of (i.e., bonding and bridging) separately on students' stress, with no other study exclusively examining the diversified paths through which this association may occur. Acknowledging the paths through which college students may reduce stress may direct interventions to strengthen both external (social capital and social support) and internal ways (resilience and life satisfaction) to cope with stress.

2 | LITERATURE REVIEW

2.1 | The concepts of social capital and social support

Some researchers consider that social capital concerns people's social groups and personal relationships, and others that it refers to the effects of the relationships (Bourdieu, 1986). Williams (2006) has clearly operationalized social capital as the outcome rather than the network of social relationships, the latter of which he considered to be the cause of social capital. Thus, social capital concerns the potential benefits or resources provided to the individual through social interactions (Putnam, 1995; Williams, 2006). A distinction has been made between 'bonding' and 'bridging' social capital (Putnam, 2000). Bonding social capital refers to the emotional or substantive support-based resources between strongly tied persons (e.g., family and closest friends), whereas bridging social capital concerns the information-based benefits between weakly tied persons in heterogeneous networks (e.g., colleagues, acquaintances and friends in general; Putnam, 2000; Vitak & Ellison, 2013). Therefore, the benefits of bonding concern the 'depth' of the relationships, whereas the benefits of bridging concern the breadth of the relationships (Williams, 2006). A seemingly similar concept used in the relevant literature is social support. Social support concerns the quality of an individual's most significant relationships (e.g., family, work and friendship ties), in terms of both the perceived structural (i.e., which is the significant person in particular) and functional (e.g., emotional and practical) aspects of support (Power, Champion, & Aris, 1988).

Although social capital and social support may be considered to overlap, they differ. Social capital describes the overall resources—both *potential* and *actual*—available through one's social relationships (Vitak & Ellison, 2013), such as interaction and communication, information exchange, ability to mobilize others and social support (Williams, 2006). Social support can be specifically considered one of the benefits of social capital. It also concerns only the perceived *actual* support one receives through certain relationships (Power et al., 1988). It could be said that social support (emotional and practical) is associated (but it is not the same) with bonding social capital, whereas other resources, such as information, are associated with bridging social capital. Ryan, Sales, Tilki, and Siara (2008) have suggested that in certain cases (e.g., migrants), examining the different types of support and resources one derives through their personal social networks is more helpful than examining "the ambiguous concept" of social capital.

The operationalization of social capital by Williams' scales (2006) takes both types of relationships into consideration (i.e., bonding and bridging) and the contexts in which they occur (i.e., online and offline). Although Williams (2006) has suggested that different types of relationships within one's social network can predict different kinds of social capital, these scales do not take into consideration the person with whom the interaction takes place. Power et al's (1988) social support scales (i.e., Significant Others Scale) allow the person to be specified and referred to.

2.2 | Social support, social capital and stress in offline settings

Abundant research evidence has shown the effectiveness of social capital and social support in achieving stress relief among children and adults, whereas limited evidence exists among emerging adults (Szkody & McKinney, 2019) and college students (Yoo, 2018). Perceived social support has been negatively associated with stress in student samples (Jeong, 2019; Vats & Kaur, 2018) and it has been considered a buffer to stress and adversity (Southwick et al., 2016). These findings suggest the importance of establishing and/or enhancing a social support system for the students to cope with stressors and improve their mental health (Wilks & Spivey, 2010).

Stress has also been linked with social capital. Wu et al. (2018) found that social capital reduced the impact of uncertainty stress in undergraduate Chinese medical students. Very few studies have examined bonding and bridging social capital separately. Mitchell and LaGory (2002) showed a marginally negative association between distress and bridging and, unexpectedly, a positive one with bonding social capital in an impoverished community. Yoo's (2018) longitudinal analysis highlighted a causal relationship, with bonding social capital developing first and academic stress—depending on the situation and its appraisal—decreasing or increasing as a result of the bonding social capital.

2.3 | Social support, social capital and stress in online settings

There is an ongoing discussion about whether online social relationships (i.e., through the internet) have a positive or negative effect. Some studies argue that the internet has positive effects, as it compensates for limited offline support (Brailovskaia, Rohmann, Bierhoff, Schillack, & Margraf, 2019; Indian & Grieve, 2014), reinforces and supplements human communication (Magsamen-Conrad, Billotte-Verhoff, & Greene, 2014), is advantageous for socially anxious individuals (Indian & Grieve, 2014) and increases subjective well-being and reduces stress (Brailovskaia et al., 2019). Other studies show that the internet has a negative impact, as socializing online may increase the risk for Facebook Addiction Disorder (Brailovskaia et al., 2019) and cannot supplant or counterbalance lack of socializing offline (Ye, 2017).

Online social networking and information technology, in general, have also been suggested to positively influence the development and maintenance of social capital (Hampton & Wellman, 2003), particularly the bridging social capital compared to bonding social capital (Tiwari, Lane, & Alam, 2019). Burke and Kraut (2016) have found that online communication from strong ties is associated with improvements in well-being.

2.4 | Social capital, social support, life satisfaction and resilience

Resilience is a term not yet clearly defined, and thus, most contested and debated. It has been defined either as an innate and relatively stable personality trait or—more recently—as a dynamic process through which the person draws from a group of positive resources to adapt (Ayed, Toner, & Priebe, 2019; Windle, 2011). In this study, resilience was conceptualized as a dynamic process that can change and enhanced. Windle (2011) has suggested that a number of protective factors, the so-called 'assets', 'resources' or 'strengths', need to be activated in order resilience to be achieved; support systems generated through social capital and family support are one of the resources or external to the individual protective factors. Adequate evidence also indicates that social support is an indicator of resilience among college students (McKibbin et al., 2016; Sabouripour & Roslan, 2015) and has a positive impact on it (Wilks & Spivey, 2010), in the way that a supportive network of social relationships may improve a person's capacity to cope with life's challenges. Similarly, social capital has also been considered an indicator of resilience and a buffer to stress and adversity (McKibbin et al., 2016; Southwick et al., 2016). Jahanshahi, Maghsoudi, and Nawaser (2020) have also indicated that social capital has a positive effect on employees' resilience.

Life satisfaction concerns the cognitive component of subjective well-being and refers to a general evaluation of one's own life (Peterson, Park, & Seligman, 2005). Many studies have concluded that higher life satisfaction has been associated with a network of close relationships (Diener & Seligman, 2002; Helliwell & Putnam, 2004), with social networks (Singh & Singh, 2020) and social capital (Kroll, 2008). However, the association between life satisfaction and *online* social capital has been far less studied. Previous findings have suggested an association between life satisfaction and online bridging social capital (Ellison, Steinfield, & Lampe, 2007), whereas a similar link with online bonding has not been clearly established (Trepte, Dienlin, & Reinecke, 2013).

2.5 | Life satisfaction, resilience and stress

Both resilience (Hernández, Escobar, Fuentes, & Eguiarte, 2019) and life satisfaction (Karaman, Lerma, Vela, & Watson, 2019) have been associated negatively with stress. Individuals with high resilience had lower levels of academic stress compared to those with lower resilience (Hernández et al., 2019). Oktavia, Urbayatun, & Mujidin (2019) showed that, although both peer social support and hardiness personality (a concept closely related to resilience) decreased academic stress, peer social support alone did not impact on academic stress, but personality hardiness did. Life satisfaction has also been negatively associated with home and school stress experience (Moksnes et al., 2019).

2.6 | The role of gender

Women have been shown to value relatedness more than men (Heintzelman & Bacon, 2015), have higher scores on relational self-construal (Cross & Madson, 1997) and a larger network of personal relationships (Caetano, Silva, & Vettore, 2013) compared to men. While women would be expected to have lower levels of stress, as a result of the positive impact of social support, some studies have revealed that women have a significantly higher prevalence of distress compared to men (Zhang, Zhang, Zhang, Zhang, Zhang, & Feng, 2018). Kawachi and Berkman (2001) suggested that women's higher rate of psychological distress and mental illness symptoms is associated with their social roles (e.g., expectations to be the primary carers of others). *Similarly*, the use of digital media has been related to more perceived stress for women (Hampton, Lu, & Shin, 2016). Since levels of stress differ among genders, the protective effect of resilience against stress has also been found to differ across genders. Askeland, Hysing, Sivertsen, and Breivik (2019) have found gender differences in resilience, with men scoring higher in all subscales of the Resilience Scale for Adolescents except the 'social support'. Zhang et al. (2018) found that gender moderated the relationship between resilience, perceived social support and psychological distress, as Chinese male college students primarily used resilience to cope with psychological distress, whereas females primarily used perceived social support.

2.7 | The present study

This study aimed to examine the diversified effect of online and offline social capital (i.e., bonding and bridging) and social support on perceived stress through resilience and life satisfaction in a sample of Greek college students. In the present study, social support and social capital were considered important external resources to buffer a person from the negative effect of stressors (DeLongis & Holtzman, 2005), whereas resilience and life satisfaction were considered important internal resources (Zhang et al., 2018). To the authors' knowledge, few studies as yet have examined the association of both online and offline social capital and social support with stress. As it has been shown that perceived social support influences mental health more than the actual social support (Hefner & Eisenberg, 2009), this study examined perceived social support. Potential gender differences in the association between social capital/social support (both online and offline) and perceived stress through resilience and life satisfaction were also explored.

It was anticipated that students' perceived stress will be decreased by (1) the increase of offline social support, (2) the increase of bonding social capital rather than bridging social capital and (3) the increase of offline social capital rather than the increase of online social capital. It was further anticipated that (4) social capital/social support will be correlated with college students' perceived stress through resilience and life satisfaction and that (5) the effects of social capital/social support on college students' perceived stress through resilience and life satisfaction will differ between females and males.

3 | MATERIALS AND METHODS

3.1 | Sample

A convenience sample of 403 undergraduate students (mean age of 21.0 ± 2.7 years; 55.3% females) was recruited from two tertiary institutions in Crete, Greece (i.e., the Hellenic Mediterranean University and the University of Crete). Of the participants, 88.1% (355) were members of a social network (SN) for 2–4 years (40.7%) or over 4 years (32.6%). The most frequent SN was Facebook (98.8%) and Twitter (26.1%). The frequency of SN use was daily (51.5%), the time spent using SN per day fell within the 1–4 h category (47.6%), and they reportedly have over 300 online friends (51.8%).

3.2 | Procedure

Permission was obtained prior to the distribution of the questionnaire from the departmental Research Ethics Committee at which the authors are affiliated. Then it was administered to the students mainly during regularly scheduled classes. These students were recruited from authors' four classes, covering freshmen to seniors in a Social Work department. Students were not compensated for their participation. The response rate was nearly 95%. Cover letters provided the necessary information, such as voluntary participation, anonymity and confidentiality. Students were not compensated for their participation.

3.3 | Measures

The questionnaire booklet included demographics (e.g., gender, age, marital situation and parents' education), questions about social networking (e.g., frequency and duration of SN use and number of friends), social capital and a number of other measures that follow. The Cronbach alphas and the means with standard deviations of all measures are presented in Table 1.

3.3.1 | Internet Social Capital Scale (Williams, 2006)

The Internet Social Capital Scale (ISCS) measures perceived social capital with two scales (i.e., online use and offline use), each of which has two subscales (i.e., bonding and bridging) of 10 items each. The responses are scored on a 5-point Likert-type scale ranging from 1 ('strongly disagree') to 5 ('strongly agree') and the four subscales' scores range from 10 to 50. Example items are *'There are several people online/offline I trust to help solve my problems'* (bonding subscale) and *'Interacting with people online/offline makes me want to try new things'* (bridging subscale).

3.3.2 | Significant Others Scale (Power et al., 1988)

The Significant Others Scale (SOS) is a 4-item scale measuring social support one receives from significant people in his/her social network. In this study, friends and partners were named and the participants responded on a Likert-type scale ranging from 1 (never) to 7 (always). Responses are summed up to produce a total score and separate scores for emotional and practical support. In this study, the Greek translation was used (Kalaitzaki, Pattakou, & Foukaki, 2019).

3.3.3 | Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985)

The Satisfaction with Life Scale is a measure of one's satisfaction with life with five items (e.g., 'The conditions of my life are excellent'). The responses on a Likert-type scale range from 1 (strongly disagree) to 7 (strongly agree). In this study, the Greek translation was used (Galanakis, Lakioti, Pezirkianidis, Karakasidou, & Stalikas, 2017).

TABLE 1 Correlation coefficients of the ISCS with the SOS, RS-15, SWLS and PSS-10, M, SD and alpha coefficients

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. ISCS (offline bonding)	-	-	-	-	-	-	-	-	-
2. ISCS (offline bridging)	0.620[a]	-	-	-	-	-	-	-	-
3. ISCS (online bonding)	−0.122[b]	−0.127[b]	-	-	-	-	-	-	-
4. ISCS (online bridging)	0.153[a]	0.272[a]	0.395[a]	-	-	-	-	-	-
5. SOS (partner)	0.328[a]	0.198[a]	0.007	−0.044	-	-	-	-	-
6. SOS (friends)	0.396[a]	0.349[a]	−0.013	0.120[b]	0.299[a]	-	-	-	-
7. RS15	0.248[a]	0.250[a]	−0.002	0.113[b]	0.342[a]	0.256[a]	-	-	-
8. SWLS	0.197[a]	0.158[a]	0.062	−0.020	0.366[a]	0.288[a]	0.509[a]	-	-
9. PSS-10	−0.045	0.089	−0.145[b]	0.062	−0.190[a]	−0.068	−0.296[a]	−0.365[a]	
M	39.97	39.99	25.05	32.03	22.80	23.86	78.55	23.63	20.41
SD	7.27	7.34	7.96	10.04	5.58	4.31	15.36	5.95	5.96
Score range	10–50	10–50	10–50	10–50	4–28	4–28	15–105	5–35	0–40
α	0.81	0.88	0.82	0.91	0.88	0.88	0.91	0.83	0.75

Abbreviations: ISCS, Internet Social Capital Scale; M, means; PSS-10, Perceived Stress Scale; RS15, Resilience Scale; SD, standard deviation; SOS, Significant Others Scale; SWLS, Satisfaction with Life Scale.

[a]Correlation is significant at the 0.01 level (2-tailed).

[b]Correlation is significant at the 0.05 level (2-tailed).

3.3.4 | Resilience Scale (Neill & Dias, 2001)

The Resilience Scale measures one's capacity to succeed in dealing, overcoming and adapting after stressors and adversity across 15 items. Responses on a 7-point Likert-type scale, ranging from 1 (strongly disagree) to 7 (strongly agree), are averaged and range from 1 to 7; a higher score corresponds to higher perceived resilience. In this study, the Greek translation was used (Leontopoulou, 2006).

3.3.5 | Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983)

The Perceived Stress Scale (PSS-10) is a 10-item measure of the degree to which situations in one's life, over the previous month, are perceived as unpredictable and uncontrollable (e.g., 'In the last month, how often have you been upset because of something that happened unexpectedly?'). Responses are given on a 5-point scale, ranging from 0 (never) to 4 (very often). A total scale score is produced after reversing the four positively worded items. In this study, the Greek translation was used (Andreou et al., 2011).

3.4 | Translation of the measures

ISCS and the PSS-10 were translated into Greek by a bilingual Greek person. The translated instruments were then back-translated into English by another bilingual person who was not aware of the original versions before. The translated instruments were compared with the original ones and few minor adjustments were made.

3.5 | Data analyses

A series of confirmatory factor analyses was initially conducted to ensure the statistical appropriateness of the measurement model and determine the factor structure of our hypothesized variables. Observed and latent variable path analysis examined the relationships among the study variables. For the sake of simplicity, the term path analysis will be used hereinafter. A multi-group analysis (MGA), using the chi-square difference further explored gender differences. The MGA method using the delta chi-square can be found in many studies (e.g., Hajovsky, Reynolds, Floyd, Turek, & Keith, 2014; Hart, 2018). Results of evaluation of assumptions of multicollinearity were satisfactory. SPSS AMOS 20 was used for model building and path analysis (Arbuckle, 2011). Given that the data were continuous and met the multivariate normality assumption (Jöreskog & Sörbom, 2006), the Robust Maximum Likelihood estimation method was applied. The following goodness-of-fit indices were considered: the value χ^2/degrees of freedom ratio below 3 (Kline, 2005), the standardized root mean square residual less than 0.08, the Tucker–Lewis index, the comparative fit index and the Coefficient of determination above 0.90, and finally, the root mean square error of approximation less than 0.06 (Hu & Bentler, 1999). The Akaike's Information Criterion compared the structural models; the smaller the value, the better the fit. IBM SPSS 21.0 was used for all other statistical analyses (IBM, 2012).

TABLE 2 Summary of goodness-of-fit statistics in the determination of the underlying structure of the scales

	CMIN	*P*	*CMIN/DF*	*TLI*	*CFI*	*RMSEA*	*SRMR*
ISCS	1298.74	0.001	1.97	0.90	0.92	0.05	0.08
SWLS	0.19	0.664	0.19	1.01	1.00	0.000	0.03
RS15	184.87	0.001	2.57	0.94	0.96	0.06	0.04
PSS-10	24.24	0.187	1.28	0.99	0.99	0.03	0.03
Significant others Scale	52.91	0.001	4.07	0.96	0.98	0.09	0.04

Abbreviations: CFI, comparative fit index; CMIN, minimum χ^2; CMIN/DF, minimum χ^2/degrees of freedom ratio; ISCS, Internet Social Capital Scale; $p = p$ value; PSS-10, Perceived Stress Scale; RMSEA, root mean square error of approximation; RS15, Resilience Scale; SRMR, standardized root mean square residual; SWLS, Satisfaction with Life Scale; TLI, Tucker–Lewis index.

A p-value of <0.05 or less was considered statistically significant at a two-tailed level of significance.

4 | RESULTS

As anticipated, both measures of offline social capital (i.e., bonding and bridging) correlated positively with the SOS (partner and friends' version), which is a measure of offline social support. Online bonding did not correlate with the SOS (neither the partner nor the friends' version), whereas online bridging marginally correlated positively with the friends' version of the SOS (Table 1). From Table 2, it can be seen that the fit indices for all measures were adequate to very good.

4.1 | Path analysis

Initially, all five independent variables (social support/SS, online and offline bonding and bridging) were used to predict perceived stress. While nearly all variables were significantly associated with perceived stress in the bivariate analysis, online and offline bridging were not significant predictors in the path model once associations with other variables were accounted for. Only significant paths from the predictors to perceived stress remained.

Then an optimized path analysis with paths from the three predictors (i.e., social support, offline and online bonding) to resilience and life satisfaction and from resilience and life satisfaction to perceived stress (Model I) was compared with a model with direct paths from the predictors to perceived stress (Model IIa). Model fit indices and estimated parameters were obtained (Table 3). Changes were made if the modification indices suggested improvement of the model fit (Byrne, Shavelson, & Muthen, 1989).

Model I fitted the data better than the model IIa. Non-significant paths were dropped gradually (i.e., from offline bonding and social support to perceived stress) until only the path from online bonding to perceived stress remained (Model IIb). The final model with the standardized coefficients is depicted in Figure 1. Fit indices for the final path model were very good (Table 3). Thus, a model with indirect and direct paths emerged as the better model. Both social support and offline bonding predicted life satisfaction and resilience, which in turn predicted perceived stress. Online bonding directly predicted perceived stress. Thus, the more online bonding the less perceived stress and the more social support the more resilience and life satisfaction, which in turn were associated with less perceived stress. Unexpectedly, the more offline bonding predicted less resilience and life satisfaction, which in turn predicted less perceived stress. The standardized path coefficients (beta) are presented in Table 4.

TABLE 3 Summary of goodness-of-fit statistics of the models

	CMIN/DF	SRMR	TLI	CFI	RMSEA	AIC
Model I	12.05	0.13	0.487	0.731	0.17	180.51
Model IIa[a]	15.36	0.13	0.333	0.746	0.19	176.87
Model IIb[b]	1.25	0.02	0.988	0.996	0.02	64.75

Abbreviations: AIC, Akaike's Information Criterion; CFI, Comparative Fit Index; CMIN/DF, χ^2/degrees of freedom ratio; RMSEA, Root Mean Square Error of Approximation; SRMR, Standardized Root Mean Square Residual; TLI, Tucker–Lewis Index.

[a]All three independent variables have paths to perceived stress.

[b]Only online bonding has a path to perceived stress.

The test of gender moderation was not significant ($\Delta\chi^2$ (10) = 11.71, $p = 0.305$). However, based on differences on slope tests, statistically significant gender differences on the paths from social support to resilience (t (402) = 1.93, $p < 0.001$) and from bonding offline to resilience (t (402) = 2.23, $p < 0.001$) were found. There was a relationship between offline bonding and perceived stress through life satisfaction in men (Figure 2a) and through resilience in women (Figure 2b) with significant and negative paths. The paths from life satisfaction and resilience to perceived stress (for men and women, respectively) were also significant and negative. The direct path from online bonding to perceived stress was significant only in men (the more online bonding the less stress). For both genders, the paths from social support to resilience and life satisfaction were positive and significant. For women, the path from life satisfaction to perceived stress (besides the one from resilience to perceived stress) was also significant. The standardized path coefficients (beta) can be seen in Table 4.

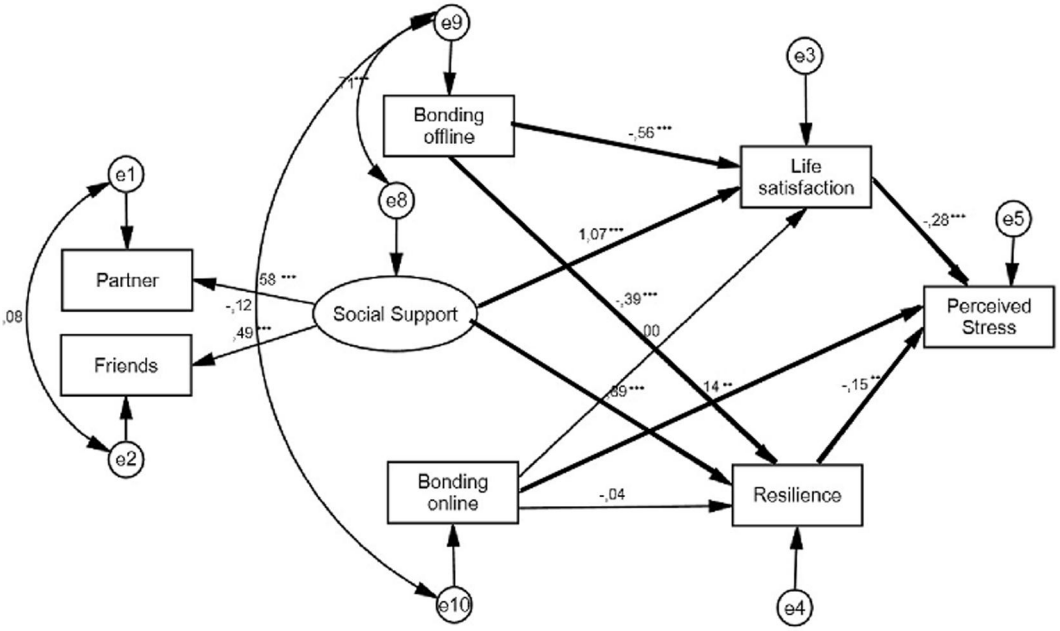

FIGURE 1 Summary of path coefficients for the whole sample. Numbers reflect standardized regression coefficients. Bold paths reflect significant effects. ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$. Values are standardized regression weights. Fit indices for the model: CMIN=8.75, DF=7, p=0.271; CMIN/DF=1.23; CFI=0.996; TLI=0.988; RMSEA=0.02; SRMR=0.02. CMIN, minimum χ^2; CMIN/DF, minimum χ^2/degrees of freedom ratio; DF, degrees of freedom; CFI, comparative fit index; TLI, Tucker–Lewis index; RMSEA, root mean square error of approximation; SRMR, standardized root mean square residual

TABLE 4 Standardized path coefficients (beta) for the whole sample and for the men and women separately

			Standardized coefficients		
Regr. weights			Total sample	Men	Women
R	←	B_off	−0.39***	−0.13	−0.58***
R	←	B_on	−0.04	−0.01	−0.08
R	←	SS	0.87***	0.70***	1.03***
LS	←	B_off	−0.56***	−0.51**	−0.58***
LS	←	B_on	0.003	0.003	0.01
LS	←	SS	1.07***	1.04***	1.05***
PS	←	R	−0.15**	−0.11	−0.17*
PS	←	LS	−0.28***	−0.27***	−0.30***
PS	←	B_on	−0.14**	−0.19**	−0.07

Abbreviations: B_off, Bonding (offline); B_on, Bonding (online); LS, Life satisfaction; R, Resilience; PS, Perceived Stress; Regr. weights, Regression weights; SS, Social Support.
***$p < 0.001$; **$p < 0.01$; *$p < 0.05$.

5 | DISCUSSION

Consistent with the expectations (Durbin et al., 2019), offline social support was found predict reduced perceived stress for the whole sample and each gender. The second hypothesis was also confirmed, as it was the relationships between strongly tied persons (i.e., the bonding social capital), and not between loose ones (i.e., the bridging social capital) that predicted resilience, life satisfaction and the outcome variable; this was true for the whole sample and each gender. Although someone might anticipate that college students would rely mostly on the number of relationships, which relates to bridging (Choi, Kim, Sung, & Sohn, 2011), this was not the case in this study. It is possible that in relatedness cultures, such as Greece, people are close and emotionally connected to their families and close friends, which has to do with bonding social capital (Kagitcibasi, 2005). Burke and Kraut (2016) concluded that communication from strong ties was associated with improved well-being, whereas communication from weak ties was not and Cheng, Meng, & Liu (2018) found that the strength—and not the number—of student's communication network was positively associated with perceived emotional support and with their sociocultural adjustment. It is therefore suggested that good relationships with strong ties would be associated with less perceived stress as these ties are likely to provide reciprocity, trust, and emotional support (van der Horst & Coffé, 2012).

The third hypothesis was not supported. It was both the offline and online bonding social capital that predicted reduced perceived stress (not just the offline ones), though through different pathways; online bonding directly predicted reduced perceived stress for the whole sample and for men, whereas offline bonding indirectly, through resilience and life satisfaction. A stronger direct effect of bonding social capital than the indirect effect on subjective well-being was also found by Hwang, Ng, and Vaithilingam (2019). No matter what the reasons for resorting to online bonding could be (limited/insufficient offline communication, inadequate capacities to form offline relationships, shyness, difficulties in face-to-face

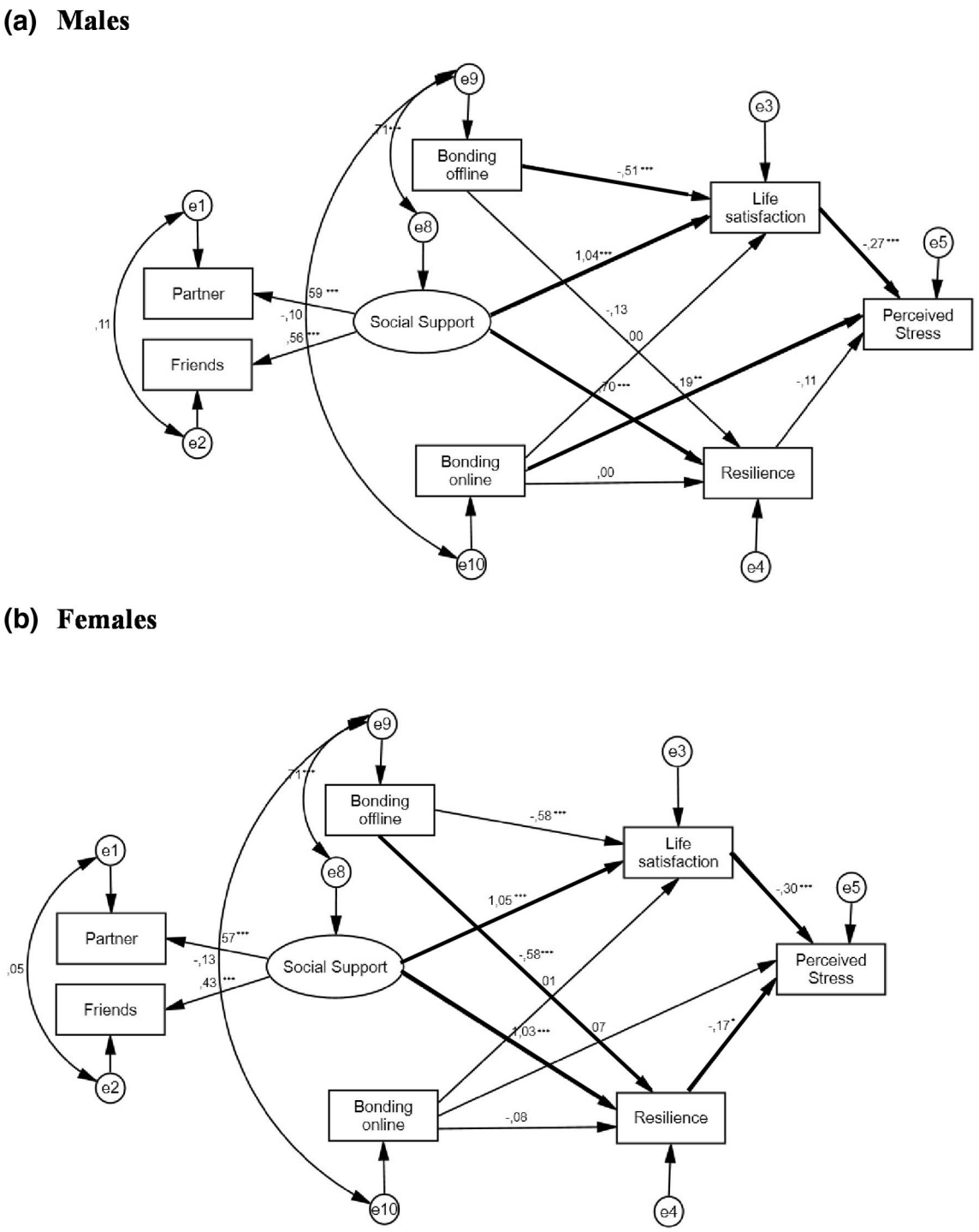

FIGURE 2 Summary of path coefficients among (a) males and (b) females. Numbers reflect standardized regression coefficients. Bold paths reflect significant effects

self-disclosure, need to promote social connectedness; Hurt et al., 2012), it seems that it is beneficial, for college students at least, for decreasing their daily life stress (Brailovskaia et al., 2019; Burke & Kraut, 2016; Zhang, 2017). Taking into consideration that the sample consists of college students, the majority of whom live away from their family of origin and close friends, online bonding seems to compensate for face-to-face communication with strong ties.

The fourth hypothesis, that there would be a relationship between social capital/social support and perceived stress through resilience and life satisfaction was supported. In line with other findings (Durbin et al., 2019; Singh & Singh, 2020), the more social support from close friends and partners the more resilience and life satisfaction, which in turn predicted less perceived stress. Studies have shown that marital satisfaction (Waldinger & Schulz, 2010) and

attachment to partners (Waldinger, Cohen, Schulz, & Crowell, 2015) are associated with better well-being and quality social connections impact the level of happiness of older adults. Given that Greece is mainly a collectivist country (Georgas, 1989), supportive relationships are positively associated with life satisfaction, especially for persons with high interdependent self-construal (i.e., a self which is connected to the social context; Heintzelman & Bacon, 2015).

Rather surprisingly, offline bonding was found to predict reduced resilience and life satisfaction (for the whole sample and for each gender), which in turn, predicted reduced perceived stress. The bonding and bridging items of the ISCS (Williams, 2006) refer to 'someone' or 'people' in general, whereas the SOS scale measures the social support one receives from specific persons, to whom one is close (e.g., friends and partners). Whereas close relationships with specific persons (i.e., what the SOS measures) increase resilience and life satisfaction, it is quite possible that relationships with people in general (i.e., what the offline bonding measures) may have the opposite effect. Kafetsios (2006) unexpectedly found that social interactions in young Greeks were less satisfactory than in more individualist cultures (e.g., the United Kingdom). For most students, the college years are a period during which they build new relationships (e.g., roommates, friendships, casual or serious dating), the communication with whom may be difficult, confused and uncertain. Assuming that students pursue meaningful relationships to support them during these years, it could be that they feel that these new relationships (i.e., offline bonding) are not yet strong and for this, they may experience disappointment. Thus, these relationships be perceived as superficial and neither meaningful nor trustworthy, bonding may be harmful to their resilience and life satisfaction, whereas support from specific persons, on which the students rely on (e.g., social support) may be beneficial for their resilience and life satisfaction. It is not, therefore, surprising that bridging failed to be a significant predictor in the path model.

The fifth hypothesis was not supported. Although the moderation of gender was not confirmed, several gender differences were found. Whereas offline bonding predicted reduced perceived stress for women through resilience, for men it occurred through life satisfaction. Gender differences in resilience have been found (Askeland et al., 2019) and it has also been shown that the gender moderates the relationship between resilience, perceived social support and psychological distress (Zhang et al., 2018). Kafetsios (2007) has shown support satisfaction to predict well-being in young males, whereas interaction with acquaintances predicted decreased perceived stress in females. Since it has been found that an increase in social support results in an increase in resilience (Matel-Anderson, DBekhet, & Garnier-Villarreal, 2019), it might be reasonable to assume that in women, who are more interdependent, rely on and value social support more than men, social support might influence their levels of resilience. The assumption that, when the expectations of qualitative relationships cannot be met, that might negatively influence women's resilience, merits more thorough research.

Another significant finding was that online bonding directly predicted reduced perceived stress only for men. It seems that men rely on online bonding more than women to relieve stress. This is consistent with the finding that Greek male adolescents use social networking sites, play computer games (Faliagka, Tsakalidis, & Vaikousi, 2011), and use the internet for entertainment (Papastergiou & Solomonidou, 2005) more than females. Although it cannot be concluded, online bonding seems to be a significant source of stress reduction for male students, whereas women may prefer offline bonding, because it fosters proximity and it is a more direct way of relating to others. Collins and Cox (2014) have found that the number of hours spent per week by male participants in playing digital games was positively correlated with overall recovery from work-related stress. Gender differences in the means to deal with stressful situations have also been found (Blatt-Eisengart, Drabick, Monahan, & Steinberg, 2009), with men being characterized primarily by separation and individuality and women relying on social support and connectedness (Sneed et al., 2006), which is suggestive of the tenability of this argument. Besides, it has been proved that women are more likely to adopt a relatively interdependent self-construal than men (Cross & Madson, 1997; Kafetsios, 2007).

Although this study was conducted before COVID-19 pandemic, we were concerned about whether bonding and bridging will probably change during or after the challenging years of the pandemic. Lockdown inevitably resulted in social distancing between people but not necessarily in emotional distance and disconnection. It would be of great interest for future studies to examine the sources of support people seek to reduce stress; online bridging might emerge as a significant source of stress reduction and/or online bonding might be intensified. Offline social support and offline social capital will potentially succumb, at least temporarily, in the face of the new demands. Future studies should also examine whether online relationships will potentially be converted into deep and meaningful ones, with people staying connected, creating intimacy, and having a successful 'bonding' relationship online.

The convenience sample and the cross-sectional nature of this study are serious limitations. Since it has been found that social support from friends is associated with life satisfaction (Diener & Diener, 2009) and social support from a partner is associated with relationship satisfaction (Baker & McNulty, 2013), future research has to systematically examine the diversified impact of different sources of social support on life satisfaction. The networks' characteristics, such as the structural (i.e., size and frequency) and functional aspects (i.e., depth and quality), as also the way that they are received and perceived, the kind of support they offer (emotional or practical) are all aspects of social support that merit further study.

Notwithstanding the limitations, this study has expanded our understanding of social capital and social support in many ways. First, it suggested that different types of relationships may be associated with different stress-related outcomes. Second, it showed that relationships between loosely tied persons (offline bonding) have a negative effect on resilience and life satisfaction, whereas relationships between strongly tied persons (i.e., social support) have a beneficial effect both on resilience and life satisfaction for the whole sample and for men and women separately. Third, the importance of

online bonding to reduce directly perceived stress in college students who are away from their home may highlight the usefulness of this means to counterbalance for limited close contact and personal ties. Fourth, the study showed that there are gender differences in the relationship between social capital and social support to resilience, life satisfaction and perceived stress, as it was only life satisfaction for men and only resilience for women that predicted reduced stress.

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CONFLICT OF INTEREST STATEMENT

There is no conflict of interest.

DATA AVAILABILITY STATEMENT

We do not have access to any repository.

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