International Journal of Evaluation and Research in Education (IJERE)
Vol. 15, No. 4, August 2026, pp. 3038~3048
ISSN: 2252-8822, DOI: 10.11591/ijere.v15i4.37761

Exploring the association among trait resilience, well-being, and coping strategies in Sicilian teenagers

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Article Info

Article history:

Received Nov 17, 2025
Revised Apr 8, 2026
Accepted Jun 19, 2026

Keywords:

Adolescence
Coping strategies
Psychological well-being
Resilience
Teenagers

ABSTRACT

Resilience is a personality trait strictly influenced by several protective and risk individual factors and analysis of its strengthness is useful to enhance the psychological well-being of teenagers. The aim of this quantitative cross-sectional study was to explore the relationships among resilience in terms of personality trait, psychological well-being, and coping strategies in a large group of Sicilian teenagers. We hypothesized that: the more the teenagers used functional coping strategies (e.g., active and supportive coping strategies), the more they were highly resilient, and they scored higher in dimensions of psychological well-being; the more the teenagers showed high levels of psychological well-being, the more they were highly resilient. The sample consisted of 467 teenagers (age-range: 11–13), 235 girls and 232 boys, randomly recruited from two state junior schools in Catania, Sicily (Southern Italy). For data collection, we used comprehensive inventory of thriving (CIT) for psychological well-being, resilience scale, and children's coping strategies checklist-R1. Results indicated that there were statistically significant correlations between resilience and dimensions of psychological well-being, as well as between resilience and coping strategies. In addition, multiple regression analyses showed that the use of functional coping strategies and high values of psychological well-being had a positive impact on resilience of teenagers. Future research will compare these findings with those deriving from samples of children to highlight the presence of similarities or differences in the use of coping strategies.

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1. INTRODUCTION

The relationship between resilience as a personality trait and coping styles or strategies with challenges in adolescents and young adults is a very interesting topic investigated during the last years [1], [2]. Also, the relationship between resilience and psychological well-being has been found to play an important role in promoting and enhancing individuals' quality of life [3], [4]. For these reasons, this paper analyzed how resilience, coping strategies, and psychological well-being interact together as protective factors in preadolescence and how resilience as personality trait is influenced by well-being and strategies of coping in in post-COVID period. This study is the first Italian project that highlighted on protective factors rather than risk factors as outcomes of positive recovery of preadolescents after the crisis experienced in the post-pandemic period.

According to the Wagnild and Young [5] model, resilience is understood as an individual trait functional to moderate the negative effects of stress and to promote adaptation in the environment during

a critical situation. The authors have distinguished two components of resilience: personal competence, referred to the ability to be self-confident and independent, determined, and persistent, and the acceptance of self and life, defined as the ability to accept oneself and one's life despite adversity. An additional perspective is assumed by Sinclair and Oliver [6] and Prati [7]: they described three negative factors of hardiness (impotence, alienation, and rigidity) and three positive factors of resilience (control, commitment, and challenge). The factor of control is defined as the tendency to think, feel and act as if one is influential, rather than helpless, in the face of the several contingencies of life; the factor of commitment is named as the tendency to involve oneself in, rather than experience alienation from, whatever one is doing or encounters in everyday life; finally, the factor of challenge is the tendency to believe that change is in opposition to stability and is viewed as a normal condition and that changes are interesting incentives to growth rather than threats to one's security [8].

Resilience denotes the ability to positively face adversity and bounce back under a perspective of health and well-being promotion, as well as of quality of life [9]. The concept of resilience, which refers to the ability to recover and flourish in the presence of challenges, holds significant importance in influencing the overall welfare and adaptive abilities of individuals enrolled in higher education institutions [10]. Resilience is defined as the capacity to effectively navigate and adapt to challenging circumstances and plays a pivotal role in attaining mental well-being and fostering human development [11], [12]. Thus, it is regarded as a fundamental attribute that serves as the bedrock for a multitude of beneficial traits within an individual amidst the diverse obstacles encountered throughout life. In several contexts, this personality trait helps individuals to overcome difficulties and uncertainties about their own future.

The positive role of resilience in adolescence was explored by Ng *et al.* [13], in a large sample of 719 Chinese adolescents, examining the mediational role of resilience (in terms of positive thinking, tenacity, and help-seeking) on the relationship between coping and psychopathological symptoms (anxiety, depression, anger, and aggression). Results indicated that factors of resilience mediated the relationship between coping strategies and psychopathological symptoms; the adolescents with high levels of resilience were more likely to reduce the use of avoidant coping and to express fewer internalizing disorders (such as anxiety, depression, and aggression).

Another study based on the positive role of resilience in a sample of 464 early, middle, and late Sicilian adolescents was carried out by Sagone and de Caroli [14], exploring the predictive relationships between dispositional optimism, life satisfaction, and generalized self-efficacy beliefs with resilience. It is noteworthy that highly optimist adolescents reported a more resilient profile than lowly optimist ones; highly satisfied and self-efficient adolescents showed a more resilient profile than lowly satisfied and self-efficient ones; additionally, the more the adolescents were optimist, the more they considered themselves as highly self-efficient and satisfied with their life, as well as the more the adolescents were satisfied with their life, the more they valued themselves as highly self-efficient in various circumstances. Further recent studies confirm the role of resilience as a protective factor during adolescence [15], [16].

Coping is understood as the way in which people deal with stressful and critical situations in everyday life. Lazarus and Folkman [17] defined coping as "a constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person." According to this model, the "problem-focused strategies" were focused on finding practical solutions to cope with difficulties, while "emotion-focused strategies" included support seeking or emotion regulation. Eschenbeck *et al.* [18] added additional coping strategies to the previous ones, such as "avoidance strategies", consisting of the efforts to disengage from the stressors, and "distraction", considered as the search of a variety of alternative and pleasurable activities. Subsequently, Carver *et al.* [19] hypothesized another model to explain the different strategies of coping used by each individual in critical situations; this model provided the presence of distinct aspects of problem-focused coping, such as active coping, planning, suppression of competing activities, restraint coping, seeking instrumental social support, and differentiated aspects of emotion-focused coping, such as seeking of emotional social support, positive reinterpretation, acceptance, denial, and turning to religion.

In line with these perspectives, scientific literature demonstrated that all coping models are focused on the contrast between positive, adaptive (or active), and functional coping strategies vs. negative, maladaptive (or passive), and dysfunctional ones. Considering the number of coping models existing on this topic [17], [19], [20], we choose to adopt the Ayers *et al.* model [20], according to which four types of coping strategies (active coping, avoidance, distraction, and social support) are defined for analyzing the different ways of coping for stressful situations. This choice is due to the application of this model in a developmental age with respect to the other models mainly applied to adulthood. About active coping strategies, it is possible to find cognitive decision making (CDM), direct problem solving (DPS), seeking understanding (SU), and positive cognitive restructuring (PCR). In detail, the CDM refers to planning ways to solve the problem, estimating future choices and consequences. Its specificity consists in not merely thinking about the problem but thinking about how to solve it. DPS refers to efforts to change the situation by changing the self or the

environment and involves what one does, not what one thinks. SU includes cognitive efforts to find meaning in a stressful situation or to understand it better. PCR refers to thinking about the situation in a positive and optimistic way and it includes thoughts that tend to minimize the consequences of the problem. About avoidance coping, it is possible to use the avoidant actions (AVA) and cognitive avoidance (CA): the first one includes behavioral efforts to avoid the stressful situation by staying away from it or leaving it, while the second one is referred to efforts to avoid thinking about the problem or avoiding thinking about it, using the fantasy or wishful thinking, or imagining that it was better. Lastly, about the social support coping, it is possible to cite the problem focused support (PFS) and the emotion focused support (EFS): the PFS includes the use of other people as resources to assist in seeking solutions to the stressful situation and advice or information or direct task assistance; additionally, the EFS is defined as involvement of other people in listening to feelings or providing understanding to help the person be less upset.

In the last years, empirical evidence demonstrated the relationships between coping strategies and resilience in adolescence. For example, Lee *et al.* [21] investigated resilience and coping strategies in a large group of 1,446 Korean teenagers, revealing that the more the adolescents used problem-focused coping, the more they were resilient; on the contrary, the more they used emotion-focused coping, the more they were vulnerable and struggling in front of a critical situation. Previously, Villasana *et al.* [22] analyzed coping strategies and resilience in a sample of 1,083 Spanish adolescents, noticing that coping strategies (especially, problem-focused coping) predicted high levels of resilience. More recently, some studies [23], [24] examined the role of functional coping strategies to reduce stress in the school context: results indicate that adolescents using problem-centered strategies show lower levels of anxiety about academic tasks and better abilities to build relationships with teachers and peers.

Another topic analyzed in this paper is psychological well-being mainly known by means of Ryff's six factors model [25]. According to this perspective, psychological well-being has been defined as a multidimensional construct composed by six specific key dimensions of wellness: i) self-acceptance, defined as a central feature of mental health as well as characteristic of self-actualization, optimal functioning, and maturity; ii) positive relations with others, understood as the ability to have strong feelings of empathy and affection for all human beings and to be able of great love, deeper friendship, and to have more complete identification with others; iii) autonomy, described by a sense of self-determination, independence, and regulation of behavior from within; iv) environmental mastery related to the individual's ability to choose or create environments suitable to his or her conditions; v) purpose in life, defined as a set of beliefs that give one the feeling that there is a purpose and meaning to life; and vi) personal growth, understood as the ability of individuals to develop their personal potential and to grow and expand as a person.

Subsequently, Su *et al.* [26] integrated the two main approaches used in the literature to analyze well-being: the first one is the "hedonic approach" that underlines well-being as a subjective state composed of an affective component (a prevalence of positive emotional experiences over negative ones) and a cognitive one (a personal judgment on the satisfaction one has with life as a whole, or with specific domains) [27]; the second one is the "eudaimonic approach" that emphasizes positive psychological functioning and human development with personal growth and meaning in life, that are often highlighted as core eudaimonic components [28]. Based on these contributions, Su *et al.* [26] and Andolfi *et al.* [29] defined the psychological well-being as a multifactorial topic composed by seven specific dimensions: i) the subjective well-being, in terms of high life satisfaction and positive feelings and low negative feelings; ii) the supportive and enriching relationships in terms of high support, community, trust, respect, low loneliness, and high belonging; iii) the interest and engagement in daily activities; iv) the meaning and purpose in life; v) a sense of mastery and accomplishment in terms of high general skills, learning, accomplishment, self-efficacy, and self-worth; vi) the feelings of control and autonomy; and vii) the optimism.

Recent research indicated the association between psychological well-being and resilience in adolescents. In Sicilian context, Sagone and Indiana [30] analyzed these relationships in a sample of 550 adolescents showing that all dimensions of psychological well-being were positively correlated with resilience: the more the adolescents controlled their environment, were engaged in daily activities, satisfied and optimistic within their relationships, the more they were resilient in the face of situations perceived as critical and/or adverse. Previously, Vinayak and Judge [31] examined the relationships among psychological well-being, resilience and empathy in a group of 150 Indian teenagers, revealing that all dimensions of psychological well-being were positively related to both resilience and empathy.

In the last years, following the pandemic, numerous researchers investigated the relationships among high levels of resilience, the use of functional coping strategies and high levels of psychological well-being in middle and late adolescence. For example, Beames *et al.* [32] examined resilience, positive experiences, and coping strategies by 760 Australian adolescents during the pandemic. Results demonstrated that these adolescents were highly resilient and reported positive experiences during the pandemic, including increased empathy, compassion, gratitude, and need of connection with others. Additionally, resilience was

associated with decreased psychological distress and increased positive experiences. These results showed that Australian adolescents commonly reported positive experiences and used active coping strategies during the pandemic, in the sense that these adolescents reported higher levels of resilience and were able to make the most out of an unpredictable situation that severely disrupted their daily routine.

Another study carried out by Konaszewski *et al.* [33] showed the positive relationships between high levels of resilience and high levels of mental well-being in Polish juveniles; in addition, it demonstrated that two specific coping strategies, seeking support from others and coping through emotions mediated the relationship between resilience and mental well-being. Similar results were found by Wu *et al.* [1] in a large group of 1,743 Chinese undergraduate students, using the simplified coping style questionnaire and the Asian resilience scale; it revealed that high psychological resilience was associated with a positive coping strategy.

For these reasons, we decided to explore the association among trait resilience, psychological well-being, and coping strategies to verify the significant relationships of these protective factors in Sicilian teenagers, hypothesizing that: i) the more the teenagers used active coping strategies and social support strategies and the less they used avoidance coping, the more they were highly resilient (H_1); ii) the more the teenagers scored high in psychological well-being, the more they were highly resilient (H_2); iii) the more the teenagers scored high in dimensions of psychological well-being, the more they used active and supportive coping strategies (H_3).

Considering the previous findings in the same socio-cultural context [30], we examined the effects of coping strategies and well-being on resilience using the analysis of multiple linear regressions (dependent variable=resilience; independent variables=coping strategies and dimensions of well-being, separately), as in Figure 1 for research design. Additionally, according to previous research [34]–[37], differences for gender analyses were performed hypothesizing that: girls would obtain lower values in resilience than boys (H_{4a}); would tend to use more dysfunctional strategies of coping than boys (H_{4b}); and would report lower mean scores in each dimension of psychological well-being than boys (H_{4c}).

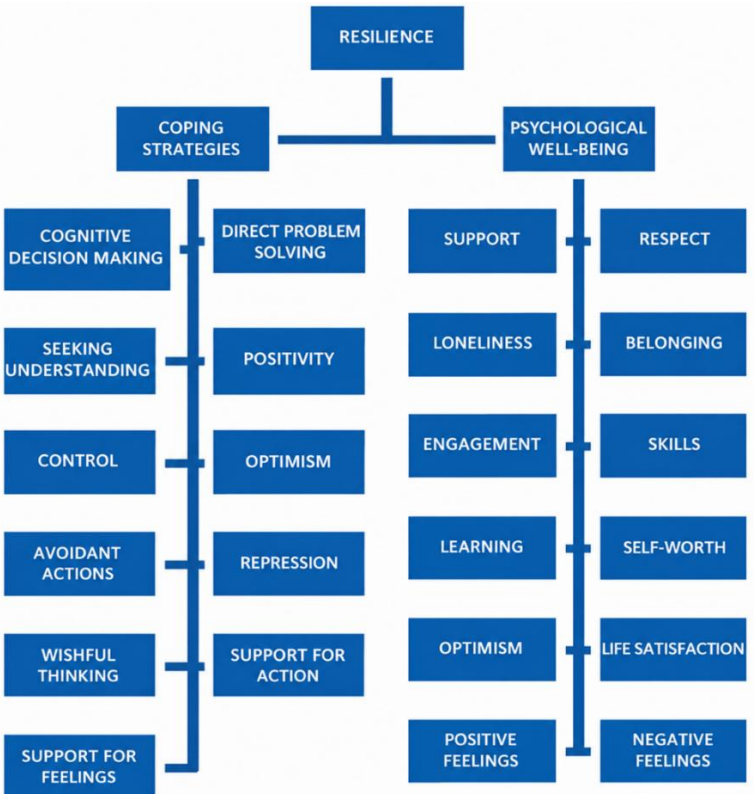

Figure 1. The research design

2. METHOD

2.1. Sample

The sample consisted of 467 Sicilian teenagers (235 boys and 232 girls) aged between 11 and 13 years old (M=11.63; SD=1.0) and randomly recruited by two state junior schools sited in Catania (Sicily,

Italy). Participants did not receive any compensation for their participation in this investigation, and formal consent was obtained by their parents before starting the study. The research project was approved by the Ethics Committee of Department of Educational Sciences, section of Psychology, University of Catania (GDPR 2016/679; Ierb-Edunict-2024.10.03/03). Data was collected from March 2024 to June 2024. Inclusion criteria for participation included being enrolled as regular teenagers at school and being healthy teenagers; for Italian school system, "regular teenagers" are identified as students without drop-out experiences or without having failed school. The exclusion criterion was to have psychopathology or psychological disorders in the past or actual period of life. The choice of this age sample has been carried out in relation to the empirical evidences from Health Behavior in School-aged Children-Italy (HBSC-Italy) in National Institute of Health (www.fondazioneveronesi.it), according to which preadolescents in this age range showed lower levels of quality of life and psychological well-being than others.

2.2. Measures

A questionnaire was administered through Google Forms that included scales for self-report and anonymous data collection. Statistical analyses were carried out by means of 26-version SPSS software. The comprehensive inventory of thriving (CIT-CHILD) [26] examined the dimensions of psychological well-being in preadolescents. We used the Italian version of CIT-CHILD by Andolfi *et al.* [29], consisting of 36 items, divided in 12 different subscales (3 items for each subscale): support (e.g., "there are people who appreciate me as a person"), respect (e.g., "people are polite to me"), loneliness (e.g., "I feel lonely"), belonging (e.g., "I feel a sense of belonging in my state or province"), engagement (e.g., "I get excited when I work on something"), skills (e.g., "I use my skills a lot in my everyday life"), learning (e.g., "learning new things is important to me"), self-worth (e.g., "The work I do is important for other people"), optimism (e.g., "I expect more good things in my life than bad"), life satisfaction (e.g., "in most ways my life is close to my ideal"), positive and negative feelings (e.g., "I feel happy/unhappy most of the time"). Teenagers were asked to indicate how much they agreed or disagreed with each statement using a 5-point Likert scale ranging from 1 (equal to "strongly disagree") and 5 intervals (equal to "strongly agree"). The Cronbach's α of these scales was ranged from 0.73 to 0.84.

The resilience scale [5], [38], [39] is used for the evaluation of some aspects of resilience in a unique dimension, including the ability to maintain a positive outlook, cope effectively with stress, and find purpose in life despite external difficulties. It is composed of 10 statements evaluated on an agreement/disagreement scale (e.g., "I usually manage one way or another"). The Cronbach's α of the scale was equal to 0.85.

The children's coping strategies checklist-revision1 (CCSCR-R1) [40], [41] investigated coping strategies in children and adolescents. Specifically, this checklist examines four coping strategies with 45 items. The first strategy is problem-focused coping, according to which the individual faces a critical situation by seeking concrete solutions: it is measured by 12 items belonging to three different sub-scales (cognitive decision making (CDM): e.g., "You thought about what you needed to know before"; direct problem solving (DPS): e.g., "You did something to solve the problem"; seeking understanding (SU): e.g., "You tried to understand it better by thinking more about it"). The second strategy is positive cognitive restructuring (PCR), referring to the individual ability to restructure cognitively and in a positive way the problematic situation to be addressed (12 items: positivity (POS): e.g., "You tried to notice or think about only the good things in your life"; control (CON): e.g., "You told yourself you could handle whatever happens"; optimism (OPT): e.g., "You told yourself that things would get better"). The third strategy is avoidance: the individuals engage in behaviors useful to avoid the critical situation (12 items: avoidant actions (AVA): e.g., "You tried to stay away from things that made you feel upset"; repression (REP): e.g., "You tried to put it out of your mind"; wishful thinking (WISH): e.g., "You wished that things were better"). Finally, the last strategy is the support-seeking (9 items: support for actions (SUPA): e.g., "You talked to someone who could help you solve the problem"; support for feelings (SUPF): e.g., "You told people how you felt about the problem"). Participants were asked to respond to what they did when they had problems in reference to the last month on a 4-point Likert scale ranging from 1 (equal to "never") to 4 intervals (equal to "most of the times"). The Cronbach's α of these scales was ranged from 0.70 to 0.92.

3. RESULTS

3.1. Correlations between resilience and coping strategies

The results of H_1 are referred to the correlational analyses for the variables resilience and all coping strategies, showing moderate and high correlation coefficients (r) and significant p-value (p). The correlation coefficient indicates the strength and direction of the linear relationships between resilience and almost all coping strategies, except for AVA and REP. In detail, all coefficients greater than 0.39 (as for SU) suggested moderate and positive correlations in the sense that, generally, as resilience increased, CDM (r=0.45,

p<0.001), SU (r=0.39, p<0.001), OPT (r=0.46, p<0.001), SUPA (r=0.47, p<0.001) and SUPF (r=0.41, p<0.001) tended to increase. These correlations were higher for DPS (r=0.56, p<0.001), POS (r=0.56, p<0.001), and CON (r=0.61, p<0.001).

3.2. Correlations between resilience and psychological well-being

Results of H_2 concerning the correlational analyses for the variables resilience and dimensions of well-being indicated that there were strong relationships between resilience and psychological well-being and, specifically, for engagement (r=0.64, p<0.001), skills (r=0.60, p<0.001), self-worth (r=0.56, p<0.001), optimism (r=0.57, p<0.001), life satisfaction (r=0.67, p<0.001), and positive feelings (r=0.64, p<0.001).

3.3. Correlations between psychological well-being and strategies of coping

Table 1 summarized the correlations between dimensions of psychological well-being and coping strategies for total sample: with Pearson's r>0.30, CDM was weakly and positively related to engagement, learning, life satisfaction, and positive feelings; DPS was moderately and positively related to engagement, skills, learning, self-worth, optimism, life satisfaction, and positive feelings; POS was moderately and positively related to engagement, skills, self-worth, optimism, life satisfaction, positive and negative feelings; CON was positively and moderately related to engagement, skills, self-worth, optimism, life satisfaction, and positive feelings; OPT was positively and moderately related to self-worth, life satisfaction, and positive feelings; SUPA was weakly and positively related to general support, skills, self-worth, optimism, life satisfaction, and positive feelings; finally, SUPF was weakly and positively related to general support, self-worth, optimism, and life satisfaction.

3.4. Multiple linear regressions of strategies of coping on resilience

Using the multiple linear regressions to verify the role of coping strategies on resilience in Table 2, the model showed a very high positive relationship between the observed values and the prediction, explaining 51.46% of the variance in the dependent variable (R=0.72; R^2=0.51; Adj R^2=0.50; analysis of variance (ANOVA): F=43.86, p<0.001). Results indicated that DPS, POS, CON, and OPT were found to have a positive impact on resilience, while AVA and REP were found to have a negative impact on resilience.

Table 1. Correlations between dimensions of psychological well-being and coping strategies–total sample

Coping strategies	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
CDM	0.26*	0.27*	0.19*	0.15**	0.31*	0.29*	0.30*	0.29*	0.27*	0.33*	0.31*	0.18*
DPS	0.27*	0.22*	0.20*	0.27*	0.40*	0.42*	0.40*	0.43*	0.33*	0.39*	0.37*	0.20*
SU	0.29*	0.18*	0.11***	0.13***	0.26*	0.25*	0.26*	0.29*	0.16**	0.25*	0.22*	0.05
POS	0.20*	0.25*	0.29*	0.30*	0.39*	0.35*	0.28*	0.38*	0.53*	0.58*	0.54*	0.36*
CON	0.24*	0.26*	0.19*	0.27*	0.40*	0.41*	0.28*	0.41*	0.43*	0.48*	0.39*	0.18*
OPT	0.20*	0.19*	0.13***	0.27*	0.27*	0.27*	0.23*	0.35*	0.42*	0.40*	0.32*	0.15**
AVA	0.06	0.02	-0.05	0.08	-0.04	-0.06	0.04	0.07	0.11***	0.05	0.06	-0.08
REP	-0.05	-0.10***	-0.11***	0.04	-0.10***	-0.12***	-0.15**	-0.07	0.06	-0.02	0.00	-0.13***
WISH	0.19*	0.20*	-0.01	0.12***	0.13***	0.14***	0.15**	0.25*	0.22*	0.18*	0.18*	0.02
SUPA	0.32*	0.15**	0.21*	0.24*	0.28*	0.34*	0.29*	0.43*	0.36*	0.41*	0.33*	0.18*
SUPF	0.37*	0.14***	0.20*	0.20*	0.29*	0.29*	0.27*	0.39*	0.33*	0.36*	0.29*	0.18*

W1: support; W2: respect; W3: loneliness; W4: belonging; W5: engagement; W6: skills; W7: learning; W8: self-worth; W9: optimism; W10: life satisfaction; W11: positive feelings; W12: negative feelings. Level of significance: *p<0.001; **p=0.001; ***p<0.05

Table 2. Regressions of coping strategies on resilience

Model	Standardized coefficients				95% confidence interval for B	
	Beta	Standard error	t	p	Lower bound	Upper bound
(Constant: resilience)		2.22	12.05	<0.001	22.33	31.09
CDM	0.03	0.69	0.78	0.436	-0.82	1.89
DPS	0.21	0.75	4.35	<0.001	1.78	4.75
SU	-0.01	0.63	-0.25	0.805	-1.39	1.08
POS	0.25	0.58	5.49	<0.001	2.04	4.34
CON	0.23	0.68	4.51	<0.001	1.71	4.38
OPT	0.11	0.65	2.32	0.021	0.23	2.81
AVA	-0.09	0.59	-2.18	0.029	-2.44	-0.12
REP	-0.14	0.53	-3.65	<0.001	-3.01	-0.9
WISH	-0.04	0.61	-1.08	0.283	-1.86	0.55
SUPA	0.06	0.7	1.04	0.299	-0.65	2.11
SUPF	0.07	0.58	1.28	0.202	-0.41	1.89

3.5. Multiple linear regressions of well-being on resilience

Also in this case, using the multiple linear regressions to demonstrate the influence of psychological well-being on resilience in Table 3, the model showed a very high positive relationship between the observed values and the prediction, explaining 62.22% of the variance in the dependent variable (R=0.79; R^2=0.62; Adj R^2=0.61; ANOVA: F=62.32, p<0.001). Results reported that dimensions of respect, engagement, skills, self-worth, optimism, life satisfaction, and positive feelings were found to have a positive impact on resilience.

Table 3. Regressions of psychological well-being on resilience

Model	Standardized coefficients				95% confidence interval for B	
	Beta	Standard error	*t*	*p*	lower bound	upper bound
(Constant: resilience)		2.14	5.15	<0.001	6.79	15.24
Support	0.03	0.48	0.88	0.379	-0.53	1.38
Respect	0.1	0.39	2.86	0.004	0.35	1.9
Loneliness	0	0.32	-0.04	0.971	-0.65	0.62
Belonging	0.02	0.29	0.65	0.519	-0.39	0.77
Engagement	0.23	0.55	5.08	<0.001	1.71	3.88
Skills	0.09	0.52	2.06	0.04	0.04	2.09
Learning	0.01	0.47	0.22	0.827	-0.83	1.03
Self-worth	0.13	0.41	3.21	0.001	0.51	2.12
Optimism	0.15	0.35	3.78	<0.001	0.64	2.04
Life satisfaction	0.16	0.49	2.99	0.003	0.49	2.41
Positive feelings	0.16	0.47	2.96	0.003	0.47	2.32
Negative feelings	-0.04	0.37	-0.79	0.427	-1.02	0.43

3.6. Differences for gender

All mean values and standard deviations, both for total sample and boys and girls separated, for dimensions of resilience, psychological well-being, and coping strategies were in line with the normative population of Sicilian teenagers, as reported in Table 4.

Table 4. Descriptive analyses for resilience, psychological well-being and coping strategies

	Total sample					
Dimensions	M	SD	Boys–M(sd)	Girls–M(sd)	*t*	*p*
Resilience	54.57	8.76	55.5(8.3)	53.7(9.08)	-2.29	0.023
Psychological well-being						
Support	4.32	0.66	-	-	-	-
Respect	4.16	0.79	-	-	-	-
Loneliness	3.84	1.15	4.0(1.05)	3.7(1.2)	-2.49	0.013
Belonging	4.11	1.02	4.3(0.9)	4.0(1.1)	-3.06	0.002
Engagement	4.06	0.73	-	-	-	-
Skills	4.02	0.77	-	-	-	-
Learning	4.37	0.72	-	-	-	-
Self-worth	3.85	0.84	-	-	-	-
Optimism	3.72	1.01	3.9(1.0)	3.6(1.02)	-2.92	0.004
Life satisfaction	4.00	0.96	4.1(0.9)	3.9(0.9)	-2.48	0.013
Positive feelings	3.94	0.98	4.1(0.9)	3.8(1.1)	-3.88	0.001
Negative feelings	3.71	1.12	3.9(1.0)	3.5(1.2)	-3.72	0.001
Coping strategies						
CDM	3.08	0.57	-	-	-	-
DPS	3.11	0.56	-	-	-	-
SU	3.12	0.60	-	-	-	-
POS	3.03	0.69	-	-	-	-
CON	2.85	0.67	-	-	-	-
OPT	2.81	0.66	2.9(0.6)	2.7(0.7)	-2.07	0.039
AVA	2.77	0.61	2.8(0.6)	2.7(0.6)	-2.33	0.020
REP	2.29	0.65	2.4(0.7)	2.2(0.6)	-4.40	<0.001
WISH	3.24	0.58	3.2(0.6)	3.3(0.6)	2.03	0.043
SUPA	2.75	0.75	-	-	-	-
SUPF	2.74	0.82	-	-	-	-

Differences for gender were performed to verify the H_{4a}. The results of the two tailed t-test for independent samples showed that girls obtained lower values in resilience than boys, with statistically significant differences. It meant that girls are less resilient than boys in the face of critical situations.

According to the H_{4b}, differences for gender in strategies of coping were found as: girls obtained lower mean values in OPT, AVA, and REP, than boys, with statistically significant differences; moreover, girls reported higher mean values for WISH than boys, with statistically significant differences. Except for the WISH mainly used by girls, these results indicated that boys are more likely to use strategies of coping based on optimistic attitudes, avoiding problems, and repressing them. Finally, gender differences were found in half the dimensions of psychological well-being according to the H_{4c}: girls obtained lower mean values in loneliness than boys, with statistically significant differences; girls obtained lower mean values in belonging than boys, with statistically significant differences; girls reported lower mean values in optimism than boys, with statistically significant differences; girls obtained lower mean values in life satisfaction than boys, with statistically significant differences; girls reached lower mean values in positive and negative feelings than boys, with statistically significant differences. These results suggest that satisfaction with life, optimism, a sense of belonging, loneliness, and positive/negative feelings are dimensions of psychological well-being mainly promoted by boys.

4. DISCUSSION

The findings of this study confirmed the actual direction of developmental research about the promotion of the protective factors on the health of teenagers also in the Italian context [30]. In detail, all functional and adaptive coping strategies (H_1) and most dimensions of psychological well-being (H_2) are positively correlated with resilience. In addition, active and supportive strategies of coping are more likely to be used by teenagers who score higher in dimensions of psychological well-being (H_3). These results are in line with previous studies carried out in Sicilian context where high levels of resilience and psychological well-being, and the use of functional coping strategies are considered protective factors in adolescence [30], [42], [43]. Also, the multiple regression analyses demonstrated the influence of psychological well-being and adaptive coping strategies on resilience in adolescents [4].

In reference to gender differences (H_{4a}, H_{4b}, and H_{4c}), results of the current study revealed that girls were less resilient than boys; boys were more likely to use coping strategies based on optimistic attitudes, avoiding problems and repressing them, while girls mainly used the avoidance strategies in terms of WISH; finally, boys were more likely to have higher psychological well-being than girls in terms of high satisfaction with life, optimism, a sense of belonging, positive feelings and low levels of loneliness. Also, in this case, these results are in line with previous literature. For example, Villanueva *et al.* [37] found that Spanish girls expressed lower levels of self-esteem and [44] subjective well-being (in terms of life satisfaction) and higher levels of perceived stress than boys. Furthermore, Hampel and Petermann [45] found that girls used less distraction/recreation and more aggression than boys and, on the contrary, boys were more likely to use avoidance strategy than girls [45]. Finally, for gender differences in resilience, most previous studies indicated that boys are more resilient than girls [34]–[36].

In the light of the current results, it can be said that this is the first study realized in teenagers without externalizing or internalizing behavioral problems as in previous and more recent investigations [46]–[48]. The novelty of this study is due to the analysis of the three main constructs making the psychological positive profile of healthy teenagers: it is characterized by high levels of trait resilience with the use of adaptive and proactive coping strategies such as the ability to actively solve problems and to cope with stressful situations adopting positive attitudes or optimistic thinking, and to deal with these situations or problems using the control ability. Additionally, teenagers with high ability to engage themselves in various situations, to demonstrate high skills in terms of self-efficacy and self-worth, to adopt an optimistic view toward the future orientation, to report high levels of life satisfaction, and positive feelings in relation to the others were found to have high resilience. This study provided significant evidence of the positive impact of dimensions of psychological well-being and coping strategies on resilience in Sicilian teenagers. It can explain that living with a good engagement, respect for the self and the others, high self-esteem and life satisfaction, experiencing positive feelings promotes the ability of teenagers to moderate the negative effects of stress and enrich adaptation to the environment under adverse circumstances.

Furthermore, dealing with coping strategies focused on positivity, problem solving, control, and optimistic view of life has significant effects on resilient characteristics in terms of the abilities to positively face adversity and bounce back. On the contrary, the use of avoidance and repression of the problems has a negative impact on resilience of teenagers. For educational implications, these results provide suggestions about the best practices from the scholastic context useful to enhance coping abilities with educational programs and training for positive approach to the life. These educational programs can be structured in sections of "flourishing experiences", for example, using problem solving scenarios or video modeling's practices for functional solutions in hypothetical and critical situations.

5. CONCLUSION

If a limit of this investigation could be indicated, it is linked to the absence of specific objective (e.g., scholastic performances) or subjective outcomes (e.g., styles of parental attachment) which is useful to demonstrate how the qualities investigated in the current study can directly or indirectly influence them. For this reason, the exclusion of outcomes such as academic performances, levels of stress, or future orientation about the choice of secondary schools in the current study could represent the line of future investigations useful to enrich the positive psychological profile of teenagers without behavioral problems (e.g., internalizing, externalizing, depression, or suicidal thinking). It may also be useful to compare these findings with those deriving from samples of children and, it would be interesting to compare teenagers with others from different countries in a cross-cultural perspective to deepen the possibility to generalize this positive approach in the developmental trajectory.

This study is based on a cross-sectional design and future longitudinal researches could be useful to deep the role of developmental trajectories in these dimensions as protective factors for psychological well-being from infancy to adolescence. For methodological issues (sample size), we used self-report scales but it is a noteworthy question try to apply interviews for now social attitudes of these participants and bring out deeper experiences and motivations underlying these results. So, to understand the cultural specificity of these results, we could realize a comparison with other countries on the same dimensions of psychological well-being in future research.

FUNDING INFORMATION

This research received no external funding.

AUTHOR CONTRIBUTIONS STATEMENT

This journal uses the Contributor Roles Taxonomy (CRediT) to recognize individual author contributions, reduce authorship disputes, and facilitate collaboration.

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
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C : **C**onceptualization
M : **M**ethodology
So : **So**ftware
Va : **Va**lidation
Fo : **Fo**rmal analysis
I : **I**nvestigation
R : **R**esources
D : **D**ata Curation
O : Writing - **O**riginal Draft
E : Writing - Review & **E**diting
Vi : **Vi**sualization
Su : **Su**pervision
P : **P**roject administration
Fu : **Fu**nding acquisition

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

INFORMED CONSENT

Written informed consent has been obtained from the participants and their parents to participate to this investigation and to publish the current paper.

ETHICAL APPROVAL

The study was conducted in accordance with the Declaration of Helsinki and it has been authorized by the Ethics Committee having the project complied with all the indications foreseen by the guidelines of the AIP (Italian Association of Psychology) and those of Ethic Board of Department of Educational Sciences, section of Psychology, University of Catania (GDPR 2016/679; Ierb-Edunict-2024.10.03/03).

DATA AVAILABILITY

The data that support the findings of this study are available from the corresponding author, [IML], upon reasonable request.

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