

ORIGINAL RESEARCH

PERIOPERATIVE MEDICINE

Mediating role of perceived social support on mental health problems in pre-operative patients

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Abstract

Background: Pre-operative patients are not only suffering from physical and physiological symptoms but they might have psychological issues which may lead to mental health issues. However, different psychosocial factors may help in managing the mental health problems in pre-operative patients.

Purpose: This study was aimed to investigate the mediating role of perceived social support on mental health problems in pre-operative patients.

Methodology: The sample of the study consisted of 180 participants who were going to get their major surgery done in a week including 51% men and 49% women between the ages of 18-35 years. The participants were presented with a questionnaire including a demographics sheet and three Urdu translated scales as Self-Compassion Scale, Multidimensional Scale of Perceived Social Support, and Depression Anxiety and Stress Scale.

Results: The results indicated that there was a significant negative correlation between self-compassion/perceived social support and mental health problems in pre-operative patients. The Pearson Product-Moment Correlation indicated a significant relationship among self-compassion, perceived social support, and mental health problems.

Conclusion: The current study spotlighted the importance of the pre-operative time in young adults and the dire need for counseling services to be provided to the patients in this crucial time to enhance the chances of post-operative recovery and wellbeing of the patients.

Key words: Self-compassion, Perceive Social Support, Mental Health problems, Pre-operative patients, Major Surgery, young adulthood

Citation: Safdar S, Rafiq M. Mediating role of perceived social support on mental health problems in pre-operative patients. *Anaesth. pain intensive care* 2021;25(1):65–72; DOI: 10.35975/apic.v25i1.1442

Received: 2 December 2020, **Reviewed:** 1 January 2021, **Accepted:** 2 January 2021

1. Introduction

Different forms of surgeries are being performed on people of different ages and they leave numerous after-effects on the person before surgery as well as afterward. The pre-operative period is called to be a period in which the individual is informed about the period of surgery. He faces many psychological and biological changes in this period. A pre-operative period is considered as the period where the individual needs support from his surroundings as well as from his inner self to better cope up with the problem.

Several studies show that during the pre-operative period if the individual is stressed out then there are chances that he will recover late or may it result in poor recovery.¹ As the individual is confronting expanded pressure before it, the endocrine reaction to stress may likewise incorporate an arrival of different hormones like a pituitary hormone.²

All of these biological changes may lead to psychological issues. These psychological may include stress, anxiety, depression about the upcoming operative period. Individuals' psychological issues

may become worse due to certain other factors including relationships, finances, etc. Anxiety is an emotional reaction to an ambiguous feeling of danger or peril and it is an emotion characterized by tension, stressed/ worried thoughts, and physical changes like expanded pulse and quick heartbeat.³ Stress is a common bit of life. Individuals can experience stress from their present condition, body, and their musings. For sure, even sure life changes, for instance, an advancement, a home credit, or the birth or marriage delivered stress.⁴

Young adulthood is a period of life wherein the individual strides into free-living and begins to achieving self-administration by endeavoring to develop oneself as a self-governing individual with one's special presence. Young adulthood is also engaged in developing character and personality, creating and keeping up passion and setting up intimate relations, and beginning their own families. Due to all these developmental changes, this phase is considered to be a challenging phase of life. Therefore, facing any serious physical illness which needs major surgery to be performed as a treatment to that problem can stimulate serious mental health problems including depression, anxiety, and stress, etc.⁵

However, a significant impact of different psychosocial factors may positively impact psychological well-being. Among such psychosocial factors, self-compassion, and social support are important factors for managing psychological issues. Several studies related to health show a link to psychological well-being with self-compassion and social connection. Social support refers to a suite of activities that create or enhance social contacts between all people. The absence of social support is interlaced in the commitment to psychological distress and prosperity. These people are especially powerless against mental health concerns and mental pain. Being isolated from social support can lead to a greater incidence of psychological distress and has been linked to a higher rate of suicide. They experience depression, self-destructive ideation, and self-destruction endeavors at rates a lot higher than in everybody.⁶ Self-compassion acts as a force that helps to avoid negative and destructive thought processes about one's self. It helps the individual to develop a positive sense of self and to be kind and mindful in difficult times.⁷

The identification of a link between self-compassion and perceived social support and mental health problems in preoperative patients will spread awareness which will help health care professionals in designing counseling and psychological intervention plans.

It will trigger the need for family therapy and its benefits to increase social support from the family. The constructs of the present investigation in young adults are not explored before in Pakistani culture. So, the current study will fill the gaps in Pakistani literature by exploring the relationship between self-compassion, perceived social support, and mental health problems in pre-operative patients.

Hypothetical Conceptual Model

Based on extensive literature and theories, researchers developed a theoretical framework for the current study to better understand the relationship between self-compassion, perceived social support, and mental health problems in pre-operative patients. From the hypothetical model shown in Figure 1, it is assumed that perceived social support mediates the effects of self-compassion and mental health problems in pre-operative patients.

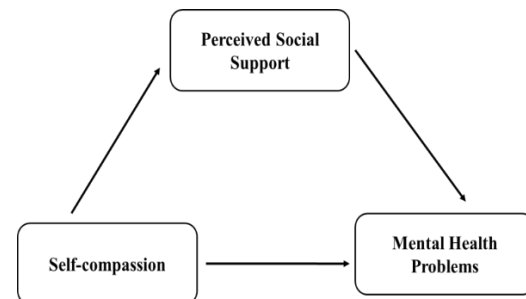


Figure 1: It shows a hypothetical model of PSS, SC, and MHP

Operational Definitions

Operational definitions of the variables of current research are as follow:

Self-compassion (SC). It is defined as being kind toward oneself in instances of pain or failure; perceiving one's experiences as part of the larger human experience; and holding painful thoughts and feelings in balanced awareness (Neff, 2003).

Perceived Social Support (PSS). It is defined as the perception of family, friends, and others to be available to provide social, emotional, and

Table 1: Summary of Inter-Correlation, Mean, Standard Deviation on SCS, MSPSS and DASS (N = 180)

No	Factors	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	SK	...	.78**	.74**	.57**	-	-	.88**	.49**	.44**	.41**	.51**	-	-	-	-
2	SJ	...	...	.66**	.52**	-	-	.84**	.45**	.45**	.43**	.51**	-	-	-	-
3	CH	...	...	...	.40**	-	-	.82**	.43**	.38**	.36**	.45**	-.19*	-	-	-
4	Isolation	...	...	...	...	.74**	.71**	.54**	.17	.20*	.13	.19*	.34**	.23**	-.21*	-
5	Mindfulness	...	...	...	...	...	.65**	-	-	-	-.18	-	.33**	.25**	.23**	.31**
6	OI	...	...	...	...	...	...	.44**	-.17	-	-.18	-	.30**	.33**	.33**	.37**
7	Total SCS	...	...	...	...	...	...	...	.52**	.44**	.42**	.53**	-	-	-	-
8	SO	...	...	...	...	...	...	...	...	.72**	.65**	.90**	.43**	.41**	.51**	.52**
9	Family	...	...	...	...	...	...	...	...	...	.56**	.88**	.36**	.40**	.51**	.49**
10	Friends	...	...	...	...	...	...	...	...	...	...	.83**	.33**	.32**	.49**	.45**
11	Total MSPSS	...	...	...	...	...	...	...	...	...	...	...	.43**	.44**	.58**	.56**
12	Depression	...	...	...	...	...	...	...	...	...	...	...	...	.61**	.56**	.83**
13	Anxiety	...	...	...	...	...	...	...	...	...	...	...	...	...	.69**	.88**
14	Stress	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.88**
15	Total DASS	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
16	M	17.08	13.66	13.80	11.01	15.40	12.39	83.34	19.21	19.40	18.26	56.87	5.82	6.07	8.97	20.86
17	SD		4.39	3.44	4.36	3.78	3.52	10.17	6.78	7.13	6.51	17.81	3.69	3.45	3.98	9.62

Note. SK = Self-kindness, SJ = Self-Judgment, CH = Common Humanity, OI = Over-identification, SCS = Self-Compassion Scale, SO = Significant Other, MSPSS = Multi-dimensional Scale for Perceived Social Support, DASS = Depression Anxiety Stress Scale, M = Mean, SD = Standard Deviation, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

materialistic support in times of need (Zimet et al., 1988).

Mental Health Problems (MHP). Mental Health Problems are defined as depression, anxiety, and stress.

Young Adults. It includes individuals with the age range from 18 to 35 years.

2. Methodology

The current quantitative study used a cross-sectional research design for exploring the relationship of the above-mentioned variables. The independent variable was self-compassion and perceived social support which was also a mediating variable, and the dependent variable was mental health problems of pre-operative patients.

Table 2: Means and standard deviations, t and p values of six factors of SCS and total scores of SCS across gender (N = 180)

Factors	Gender	M	SD	p <	t	95% CI		Cohen's d
						LL	UL	
Isolation	Men	11.15	4.46	.65(ns)	.46	-.99	1.58	0.07
	Women	10.85	4.28					
Self-judgment	Men	15.02	3.99	.17(ns)	-1.36	-1.87	.344	0.20
	Women	15.79	3.52					
Over-identifiers	Men	12.33	3.59	.80(ns)	-.25	-1.17	.91	0.04
	Women	12.46	3.45					
Common humanity	Men	13.07	4.56	.07(ns)	-1.85	-2.49	.08	0.27
	Women	14.27	4.14					
Self-kindness	Men	16.51	5.16	.10(ns)	-1.63	-2.58	.25	0.25
	Women	17.67	4.41					
Mindfulness	Men	13.41	3.54	.12(ns)	-1.56	-1.80	.21	0.23
	Women	14.20	3.32					
Total SCS	Men	81.48	10.40	.01**	-2.52	-6.71	.81	0.38
	Women	85.25	9.63					

Note: M = Mean, SD = Standard Deviation, ns = Not Significant, LL = Lower Limit, UL = Upper Limit, ** p < 0.01

Table 3: Means and standard deviations, t and p values of three factors of MSPSS and total scores of MSPSS across gender (N = 180)

Factors	Gender	M	SD	p <	t	95% CI		Cohen's d
						LL	UL	
SO	Men	17.36	6.98	.001***	-3.84	-5.66	-1.82	0.57
	Women	21.10	6.04					
Family	Men	18.41	7.27	.05*	-1.90	-4.09	.07	0.28
	Women	20.42	6.88					
Friends	Men	17.88	6.56	.43(ns)	-.79	-2.69	1.15	0.12
	Women	18.65	6.48					
T. MSPSS	Men	53.65	18.42	.01**	-2.49	-11.69	-1.35	0.37
	Women	60.17	16.64					

Note. M = Mean, SD = Standard Deviation, ns = Not Significant, LL = Lower Limit, UL = Upper Limit, *** p < 0.001, ** p < 0.01, *p < 0.05

The study was conducted in Lahore City. The population of the study included young adults (18-35 years old), scheduled for major surgery and were admitted to public and private sector hospitals of Lahore. A total of 180 pre-operative patients (91 men and 89 women) participated in the study.

A multistage sampling technique was used to select the study sample. At first, the sample was divided into two main strata as public and private sector hospitals. The next stage included the division of the main strata

into two substrata according to their gender. Within each stratum, the participants were selected randomly.

The data were collected through using a demographic questionnaire and three other scales, which were Urdu translated versions of their original scales including the Self-Compassion Scale,⁸ Multidimensional Scale for Perceived Social Support,⁹ and Depression Anxiety Stress Scale.¹⁰ A demographic form consisting of age, gender, marital status, number of family members, family system, hospital sector, living

Table 4: Means and standard deviations, t and p values of three factors of MSPSS and total scores of MSPSS across gender (N = 180)

Factors	Gender	M	SD	p <	t	95% CI		Cohen's d
						LL	UL	
Depression	Men	6.44	4.05	.02*	2.32	.19	2.33	0.35
	Women	5.18	3.17					
Anxiety	Men	6.76	3.92	.01**	2.77	.40	2.40	0.39
	Women	5.36	2.75					
Stress	Men	9.96	4.19	.001***	3.45	.85	3.13	0.51
	Women	7.97	3.51					
T. DASS	Men	23.15	10.41	.001***	3.33	1.89	7.40	0.50
	Women	18.51	8.14					

Note. M = Mean, SD = Standard Deviation, ns = Not Significant, LL = Lower Limit, UL = Upper Limit, *** $p < 0.001$, ** $p < 0.01$.

area, monthly income, and educational level was also used. Consent was taken from every participant and they were given the right to withdraw from the study. Participants were assured that only their responses will be used without revealing their identities. Keeping in mind the importance of preoperative period, participants were psycho-educated and relaxation therapy was given to them.

3. Results

The results consist of two sections including sample description, and testing of the main and secondary hypotheses. Details of these sections are as follows:

Section 1: Sample Description

Total 180 patients were enrolled. Mean age was 27.52 ± 5.26 y; the mean number of family members was 6.68 ± 2.06 . There were 91 (51%) males and 89 (49%) females.

Section 2: Testing Main Hypotheses

Hypothesis 1: There will be a negative correlation between self-compassion/social support and mental health problems in preoperative patients undergoing major surgery. There will be a positive correlation between perceived social support and self-compassion. For this a correlation analysis was performed, the inter-correlation of all the factors of three scales as 6 factors of Self-Compassion Scale (SCS), three factors of Multi-dimensional Scale for Perceived Social Support (MSPSS), and three factors of Depression Anxiety Stress Scale (DASS). Results showed that three factors of SCS, e.g. self-kindness, common humanity, and mindfulness were highly significantly correlated positively with perceived

social support and these three and other three remaining factors are negatively correlated with mental health problems (Table 1).

Hypothesis 2: It was hypothesized that perceived social support will act as a mediator between self-compassion and mental health problems in preoperative patients. The Pearson Product-Moment Correlation indicated a significant relationship among self-compassion, perceived social support, and mental health problems. Thus, the role of perceived social support as a mediator was explored in the relationship between self-compassion and mental health problems. In respect to this, Hayes's bootstrapping approach was used to find out that either perceived social support mediates the relationship between self-compassion and mental health problems or not. It was illustrated in the figure that the total effect of self-compassion and mental health problems ($\beta = -.40$, $SE = .06$, $p < .001$) was significant. Furthermore, direct effects of self-compassion on perceived social support ($\beta = .92$, $SE = .11$, $p < .001$) and perceived social support on mental health problems ($\beta = -.25$, $SE = .04$, $p < .001$) were also significant. Findings of the current research revealed that perceived social support significantly partially mediates the relationship between self-compassion and mental health problems as after controlling the perceived social support as mediator beta value is reduced but c' model ($\beta = -.17$, $SE = .06$, $p < .01$) is still significant, Figure 2.

Hypothesis 3: It is hypothesized that there would be significant differences between the two genders on all factors and their total scores of the Self-compassion Scale (SCS). The results have found significant

differences in the total scores of SCS. Women as compared to men scored higher on the total score of SCS which showed that women tend to have higher levels of self-compassion as compared to men Table 2.

Hypothesis 4: It was hypothesized that men will perceive more social support than women. The results showed that there is a highly significant difference in the level of support from significant other families and on the total scores of MSPSS in men and women. It revealed that women tend to get more social support from significant others, family, and friends as compared to men Table 3.

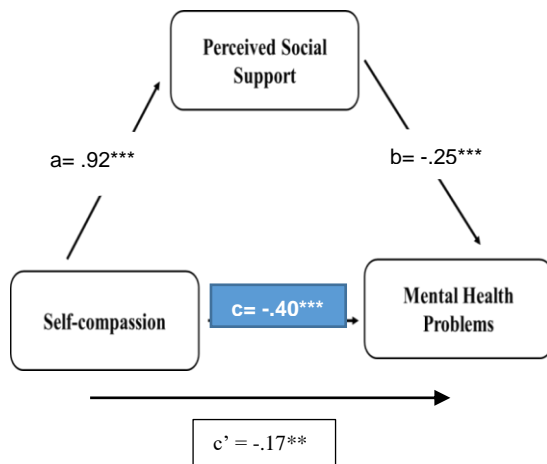


Figure 2: Mediation analysis of perceived social support in the relationship between self-compassion and mental health problems

4. Discussion

This study was aimed to explore the role of self-compassion and perceived social support in eliminating mental health problems in pre-operative young adults. To explore the relationship among all the variables, the researcher has used Urdu translated versions of the Self-Compassion Scale (SCS), Multidimensional Scale for Perceived Social Support (MSPSS), and Depression Anxiety and Stress Scale (DASS) to facilitate the participant and to remove the language barriers.

As mentioned earlier, the purpose of the current study was to explore the relationship between self-compassion, perceived social support, and mental health problems in pre-operative young adults, correlation analysis was done and it was revealed

that there was a significant positive correlation between self-compassion and perceived social support and there was a significant negative correlation

between self-compassion and mental health problems and also between perceived social support and mental health problems. These results proved that the devised main hypothesis was accepted and it was found that these findings are compatible with the previous literature.¹¹ This study investigated the association among self-compassion, perceived social support, and subjective well-being stated that perceived social support mediated the association between self-compassion and subjective well-being of the participants.

Our study was focused to investigate the mediating role of social support in mental health problems in young adults. Previous findings suggest that 18 to 27 years of age is a period in which people step into their real-world and face things on their own and start developing ideas to achieve goals, building their own identity, creating a positive body image, and sexual identity, difficulties in choosing career options, start getting independent due to which they might face financial issues, they might face rejection from their educational and work environment, they make intimate relationships and start realizing their responsibilities due to which they might face different stressors and become anxious about their future.¹² Moreover, researchers also reported some social and psychological issues faced by adults in their early adulthood period. The study stated that most of the individuals confront changes in their lifestyle and their personality as they begin to enter a new phase of life which make them vulnerable to develop mental health issues like elevated stress and anxiety until or unless they have familial, social, and financial support.¹³ These studies suggest that early adulthood is a period which is a crucial period for adults as they face different life challenges and if they fail to cope with them healthily, they become vulnerable to develop different mental health problems but if they get significant social support and with time different life experiences make them to become resilient so that they can easily beat those issues and overcome all the challenges and rise.

A significant negative correlation was identified between perceived social support and mental health problems. This means that individuals who were provided with social support were experiencing less or no mental health problems in their pre-operative period. Social support is believed to be a cushion in

stressful times for the mental health of the individuals.¹⁴ If the individual is provided with significant support from his loved ones, his friends, and from people who are significant to him, then the individual will be able to cope up with the stressful event more effectively. Results of the current study also revealed that the individuals who perceived that they will be provided with significant social support from their significant other in the time of need were experiencing fewer or no mental health problems in their pre-operative periods. Previously conducted studies also support the above-mentioned findings of the current study by stating that perceived social support was found to be highly correlated with decreasing mental health problems and increasing well-being in cancer patients and proved to act as a defensive factor against negative health outcomes and also acted as a buffer to increase treatment adherence and recovery.¹⁴

In this study, perceived social support acted as a partial mediator between self-compassion and mental health problems. A study that showed a relationship between self-compassion, perceived social support and subjective well-being stated that perceived social support mediated the association between self-compassion and the subjective well-being of the participants.¹¹ These results revealed that there was a significant positive correlation between all these three variables which means that the increase in perceived social support and self-compassion will increase the subjective well-being of the participants. It is presumed from the above results that even though self-compassion was found to be negatively correlated with mental health problems in pre-operative patients but perceived social support acted as a buffer between both the variables and made the association between self-compassion and mental health problems even stronger.

The study also identified a significant gender difference in the total scores of SCS. Significant mean differences indicated that women were found to be more self-compassionate as compared to men participants. Studies also suggested that meta-synthesis indicated significant differences in men and women in the level of self-compassion measured through total scores of SCS. Results indicated that women were found to be more self-compassionate than men.¹⁵ Concerning gender differences in the

mean values of factors of MSPSS and total scores of MSPSS, it was found that significant gender differences were found on the total score of MSPSS.

These differences were also supported by literature as it was reported that significant differences were found on the level of perceived social support in men and women and it was found that social support in men tends to get a decrease in respect to women were found to have more perceived social support from family.¹⁶

Concerning gender with mental health problems, findings revealed that men scored higher on all factors and total scores of DASS. Previous studies on gender and mental health revealed that the concept of masculine and feminine traits has a major role in predicting internalizing and externalizing mental health problems. This involves the stressful situations males and females are exposed to, availability of resources to deal with stressors, also the coping mechanisms they adopt, social support, and the relationships, they make.¹⁷ The outcomes of the current investigation highlighted that males were found to score higher on three dimensions of mental health problems including stress, anxiety, and depression.

If we relate these findings with the previous literature which states that there is a highly significant role of social support in developing these problems. Our data revealed that men score lower on perceived social support as compared to women. This might be due to the fact that as in Pakistani culture, men are less likely to talk about their problems and their stressors to others because they are thought to be the symbol of strength and they have a lot more responsibilities than women due to which they experience more internalizing problems including stress and anxiety and depression. Also, in Pakistani culture, men are responsible to manage all the financial responsibilities also they are responsible to protect their families in every difficult situation therefore, they might become more stressed and anxious when they get any serious physical illness which requires major surgery to be done because they think that if they become ill who will be the one to run their family and manage the financial and social responsibilities.

Concluding, the outcomes of the investigation spotlighted the significance of self-compassion and perceived social support for the subjective well-being of the young adult patients going to get their major

surgery done. The current study will serve as a preventative perspective. Findings of the research will spread awareness regarding the crucial pre-operative period, mental health problems, the importance of self-compassion, and perceived social support among young adults, their families, in the hospital staff who are dealing with them. Relevant hospital authorities might be able to understand the crucial pre-operative period and to highlight the need for mental health professionals in the hospitals to give all possible psychological help to the patients in their crucial preoperative period. This may enhance the effectiveness of the treatment and prognosis. However, certain limitations of the study may include: data were collected only from the hospitals of Lahore it might affect the generalizability of the findings. As the study was conducted during the pandemic of COVID-19 which may have an additional effect.

5. Conflict of interest

Authors declare no conflict of interest

6. Authors' contribution

SS: Concept, data collection, manuscript writing

MR: Concept, review

7. References

- Noblett S, Watson D, Huong H, Davison B, Hainsworth P, Horgan A. Pre-operative oral carbohydrate loading in colorectal surgery: a randomized controlled trial. *Colorectal Dis.* 2006;8(7):563-9. [PubMed] DOI: [10.1111/j.1463-1318.2006.00965.x](https://doi.org/10.1111/j.1463-1318.2006.00965.x)
- Schelling G, Roozendaal B, Krauseneck T, Schmoelz M, DE Quervain D, Briegel J. Efficacy of hydrocortisone in preventing posttraumatic stress disorder following critical illness and major surgery. *Ann N Y Acad Sci.* 2006 Jul;1071:46-53. [PubMed] DOI: [10.1196/annals.1364.005](https://doi.org/10.1196/annals.1364.005)
- Comer RJ. *Abnormal Psychology--DSM-5 Update*: Macmillan Higher Education; 2013.
- Hadi MA. Effect of work stress, work conflict and job satisfaction on employee performance at pt. Indonesia batam construction delimax. *J Bening.* 2020;7(1):17-30. DOI: [10.33373/bening.v7i1.2385](https://doi.org/10.33373/bening.v7i1.2385)
- Suvisaari J, Aalto-Setälä T, Tuulio-Henriksson A, Härkänen T, Saarni SI, Perälä J, et al. Mental disorders in young adulthood. *Psychol Med.* 2009;39(2):287-99. [PubMed] DOI: [10.1017/S0033291708003632](https://doi.org/10.1017/S0033291708003632)
- Hofmann SG, Grossman P, Hinton DE. Loving-kindness and compassion meditation: Potential for psychological interventions. *Clinical psychology review.* 2011;31(7):1126-32. [PubMed] DOI: [10.1016/j.cpr.2011.07.003](https://doi.org/10.1016/j.cpr.2011.07.003)
- Mantzios M. Exploring the relationship between worry and impulsivity in military recruits: The role of mindfulness and self-compassion as potential mediators. *Stress Health.* 2014;30(5):397-404. [PubMed] DOI: [10.1002/smi.2617](https://doi.org/10.1002/smi.2617)
- Neff K. Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. *Self and identity.* 2003;2(2):85-101. DOI: [10.1080/15298860309032](https://doi.org/10.1080/15298860309032)
- Zimet GD, Dahlem NW, Zimet SG, Farley GK. The multidimensional scale of perceived social support. *J Pers Assess.* 1988;52(1):30-41. DOI: [10.1207/s15327752jpa5201_2](https://doi.org/10.1207/s15327752jpa5201_2)
- Lovibond PF, Lovibond SH. The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behav Res Ther.* 1995;33(3):335-43. [PubMed] DOI: [10.1016/0005-7967\(94\)00075-u](https://doi.org/10.1016/0005-7967(94)00075-u)
- Toplu-Demirtaş E, Kemer G, Pope AL, Moe JL. Self-compassion matters: The relationships between perceived social support, self-compassion, and subjective well-being among LGB individuals in Turkey. *J Couns Psychol.* 2018 Apr;65(3):372-382. [PubMed] DOI: [10.1037/cou0000261](https://doi.org/10.1037/cou0000261)
- Zebrack BJ. Psychological, social, and behavioral issues for young adults with cancer. *Cancer.* 2011;117(S10):2289-94. [PubMed] DOI: [10.1002/cncr.26056](https://doi.org/10.1002/cncr.26056)
- Eisenberg N, Cumberland A, Guthrie IK, Murphy BC, Shepard SA. Age changes in prosocial responding and moral reasoning in adolescence and early adulthood. *J Res Adolesc.* 2005;15(3):235-60. [PubMed] DOI: [10.1111/j.1532-7795.2005.00095.x](https://doi.org/10.1111/j.1532-7795.2005.00095.x)
- Applebaum AJ, Stein EM, Lord-Bessen J, Pessin H, Rosenfeld B, Breitbart W. Optimism, social support, and mental health outcomes in patients with advanced cancer. *Psychooncology.* 2014;23(3):299-306. [PubMed] DOI: [10.1002/pon.3418](https://doi.org/10.1002/pon.3418)
- Yarnell LM, Stafford RE, Neff KD, Reilly ED, Knox MC, Mullarkey M. Meta-analysis of gender differences in self-compassion. *Self and Identity.* 2015;14(5):499-520. DOI: [10.1080/15298868.2015.1029966](https://doi.org/10.1080/15298868.2015.1029966)
- Tam CL, Lim SG. Perceived social support, coping capability and gender differences among young adults. *Sunway Acad J.* 2009;6:75-88. [FreeFullText]
- Rosenfield S, Mouzon D. Gender and mental health. *Handbook of the sociology of mental health*: Springer; 2013. p. 277-9.