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A closer look at Self Esteem and Perceived Social Support: Their role in Depression among Women with Chronic Illnesses

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11 Abstract

12 Chronic illnesses not only bring physical strains but also affect one's psychological health. Long-term

- 13 treatments and variations in severity demand psychological resources to cope up with these illnesses.
- 14 Cancer and heart diseases are among those illnesses which are quite prevalent and tax one's resources
- 15 to fight with illnesses. A cross sectional study design was used to carry out this study which aims to
- 16 find the predictive association of depression with self-esteem and perceived social support among
- 17 women with chronic illness (breast cancer and angina). A sample of 102 women diagnosed with
- breast cancer (51) and Angina (51) with the age ranges between 30-60 years (Mean age = 47.6,
 SD=10.68), were taken. They were recruited from different hospitals including Sindh Government
- SD=10.68), were taken. They were recruited from different hospitals including Sindh Government Useritel Dar ul Sukson and Deux university Hermitel Kenschi, Delvisten using numerical second
- 20 Hospital, Dar-ul-Sukoon and Dow university Hospital Karachi, Pakistan using purposive sampling
- 21 technique.

22 Patients' Health Questionaire-9, Rosenberg Self-Esteem, and Multidimensional Perceived Social

- Support was administered. Findings show that self-esteem has contributed to lowering depression in
 women diagnosed with cardiac illness (Angina) as well as cancer (breast Cancer). Perceived social
- women diagnosed with cardiac illness (Angina) as well as cancer (breast Cancer).Perceived social support has a significant effect on depression in women with cardiac illness (Angina) however it has
- a non-significant contribution in the reduction of depression in women with cardiac filness (Angina) however it has a non-significant contribution in the reduction of depression in women with cancer (breast cancer).
- Keywords: Self-esteem; Multi-dimensional Perceived Social Support; Depression; Chronic Illnesses;
 Cardiac; Cancer

29 Introduction

- Challenges to human health are increasing day by day, and chronic illnesses are the health conditions which are proliferating rapidly. Chronic illnesses are persistent disorders that affect a person's functioning badly [1]. Health Service Executive [2] considers chronic illness to be a long-term illness that is difficult to cure but manageable. Chronic diseases are one of the leading causes of death, figures around the globe show about 17 million deaths by cardiovascular disease, 7 million deaths by cancer, 4 million cases with chronic lung diseases, and about 1 million deaths caused by diabetes mellitus [3]. In line with the physical infirmity of the diagnosed individuals, the psychological aspect
- 37 of chronic diseases is far more lethal and negatively influences the quality of life.

38 A glance at the psychological aspect indicates depression as one of the most common 39 psychological problems which is hampering the individual's functioning significantly [4-5]. Several 40 studies in different cultures show a high risk of depression with chronic physical conditions [6]. A study conducted by researchers Nitti and associates [7] found the association of depression with 41 42 chronic illness in Asian adults and found depression to be one of the prevalent comorbid conditions 43 of chronic illnesses. Findings also highlighted that the manifestation of depressive symptoms and the 44 level of severity can be different in different chronic diseases. For example, women with the diagnosis of cancer show hopelessness which is an essential feature of depression [8-9]. Even with 45 the very initial and less severe symptoms of cancer, individuals become fearful and hopeless, develop 46 47 feelings of helplessness.

48 A study conducted by researchers Massie and Holland [10] found that women receiving treatment for breast and uterus cancer have a high level of psychological distress. Researchers conducted a 49 study on Asian women that revealed a high level of depression linked with cancer [11]. In Pakistan, 50 the prevalence of depression is 6% in the general population [12] as compared to a higher rate of 51 depression (66%) in women diagnosed with cancer [13]. However, the interesting fact discovered 52 53 was that the level of distress varies based on severity and the type of treatment, and even the individual differences were found to play a significant role. Numerous studies conducted show that 54 fear and hopelessness are highly associated with pain associated with treatments like chemotherapies, 55 surgeries, and radiations along with the fear of death in females with cancer [14-15]. 56

57 Like cancer, depression has been a focus of attention in cardiovascular diseases. The majority of 58 cardiac patients experience depression with difficulty regaining their previous activity level to resume a healthy lifestyle. Researchers conducted studies and found that mildly depressed mood in 59 the absence of a major depressive disorder worsens the prognosis and adversely impacts the 60 functioning of the individual with cardiac failure [16]. When compared, depression is 4-5 times more 61 common in cardiac patients, and it is also considered to adversely affect the prognosis of heart 62 problems [17]. These researchers further found that the risk for depression gets higher in elderly 63 64 patients of ages 50 to 60 with moderate to severe depression. As literature shows high comorbidity of depression with chronically ill patients but the question arises, what can be the factors responsible for 65 66 depression in this population? The answer to such a question is not very simple, however, there are several factors including physical, social, psychological, biological, and interplay of several factors 67 68 that lead to such comorbidities. When compared with the consecutive phases, distress in women with 69 cancer is severe immediately after being diagnosed. Getting a diagnosis of a chronic illness like 70 cancer for the first time signifies a significant impact on the emotional as well as overall life balance 71 [18].

72 Experiential studies have emphasized the individual's observation and perception linked to their 73 capacities to deal with a stressful situation and considered self-evaluation as an elementary aspect in the preservation of life quality. Beck [19] highlighted that individual with negative self-perceptions is 74 75 more vulnerable to depressive symptoms. In this regard the most frequently researched personal aspect is self-esteem. Enhancing the self-esteem of patients with breast cancer is one of the essential 76 factors to reduce depressive symptoms as self-esteem works as a fundamental factor to maintain the 77 78 quality of life when affected by depression [20]. Lower self-esteem in chronic illness is associated 79 with distress and pain which causes helplessness. Low self-esteemed patients with chronic illness are unable to fulfill the demands to adapt to the illness which creates a vicious cycle of negative affect 80 81 and depression and in turn, it adversely impacts the appraisal of the illness and so on [21]. Self 82 esteem is considered to play a significant role in life satisfaction and its connection with depression 83 among patients with cardiovascular diseases. Qin and collegues [22] found that 34 % variance in

84 depression by life satisfaction was accounted via self-esteem in cardiovascular patients.

In addition to personal variables, the literature also emphasized social connections and support to be one of the most important factors in the reduction of depression in these illnesses. Social support is connected with high self-esteem, which leads to optimism and consequently reduces the level of depression [23]. Social support is one of the multifaceted aspects which serve as buffers against stress and ensures well-being and emotional adaptability in patients with chronic illness [24-25]. Studies highlight the importance of family and friends in the favorable outcome of treatments of cancer and other chronic illness [26].

92 In light of the literature and previous researches, the present study aims to explore the 93 significance of self-esteem and perceived social support from family, friends, and significant others during the diagnosis of one of the lethal chronic illnesses including breast cancer and patients with 94 95 angina at the very initial stages in women. One of the most significant objectives in considering 96 women as a sample of the study is as in developing countries like Pakistan, there are limited health 97 care facilities, and the access to high quality health services is very difficult. If such services are 98 available, then these are expensive enough and people often reluctant to avail these services, as they 99 are unable to pay for those services. One of the other potential reasons is the reliance of a woman on a man in culture like Pakistan for most of their needs. As women are mostly dependent on their male 100 guardians. If their male partner or a guardian is not available then they can't get access to health care 101 102 services on time, or get access to the healthcare facilities as the problem get severe enough to 103 manage. In such circumstances diagnosis of even a minor health issue, women loss their autonomy 104 and consider themselves worthless and more dependent and their mental health affects negatively.

- 105 The following hypotheses were formulated in the present study.
- There would be a significant predictive association of self-esteem with depression in women with chronic illnesses (cancer: breast cancer and cardiac disease: angina).
- 108
 2. There would be a significant predictive association of perceived social support with depression in women with chronic illnesses (cancer: breast cancer and cardiac disease: angina).
- 111

112 Materials and Methods

113 Sample

A cross sectional study design was used to carry out this study. A sample of 102 women diagnosed with chronic illness (i.e., Cancer with breast cancer =51 and Cardiac disease with Angina=51) were recruited for present study. Participants' ages ranges between 30 to 60 years (Mean age =47.7 years; SD= 10.68). The sample was taken from both Government and Private sector hospitals including Sindh Government Hospital, Darul Sukoon and Dow university Hospital Karachi, Pakistan, using purposive sampling technique with the permission of the authorities and with the consent of the relevant consultants and women diagnosed with cancer and cardiac diseases.

121 Inclusion and exclusion criterion was established for the sample of the study, which is as follow;

- 30 to 60 years old women, diagnosed with breast cancer and angina were included by confirming the diagnosis from the reports and discussing with the relevant consultants.
- Women with initial stages of the illness and who were taking treatment for their medical problems were recruited.

- 126 Patients who were under treatment (minimum of one month but less than one year) for their 127 respective illnesses were included.
- 128 Only those women who were diagnosed with angina and breast cancer were included in the 129 sample.
- 130 Those patients who contacted consultants for the first time but were with the advanced stage • 131 of illness were excluded.
- 132 Women with cancer under gone mastectomy were excluded from the study sample. •
- 133 Married women diagnosed with breast cancer and cardiac diseases (angina) who were 134 currently living with their husbands were included.
- Participants, who were separated, divorced, and or widows were excluded from the study. 135 •
- Women with pre-existing mental disorders and other physical diseases (i.e., arthritis, diabetes, 136 • 137 and asthma) or disability were excluded from the study.
- 138

139 Measures

140 The Patient-Health Questionnaire-9 (PHQ-9)

This is a clinical scale to screen out depression with nine items ranging from 0-3. This scale is 141 142 intended to use with physical health problems, commonly used in the medical field. It has nine 143 diagnostic items from the Diagnostic and Statistical Manual of Mental Disorders [27] for Major Depressive Disorder [28-29]. Total scores on the PHQ-9 range from 0-27 with severity levels ranging 144 from mild (5-10), moderate (10-14), moderately severe (15-19), and severe (20-27). PHQ-9 is a 145 psychometrically sound instrument with good reliability and validity. The Urdu translated version of 146 147 PHQ-9 [30], was used in this study, which is highly associated with the Aga Khan University 148 Anxiety and Depression Scale [31] indicating a correlation of r=.80, p<.01, and a Cronbach alpha of 149 .87 showing high internal consistency. The split-half reliability of the scale (.89) shows its reliability 150 when the items are divided into odd and even halves. In current study, the Chronbach alpha obtained 151 for PHQ was .799.

152 **Rosenberg Self Esteem Scale (RSES)**

153 It measures global self-esteem. It is a four-point Likert scale with 10 items. The responses range from 'strongly agree' to 'strongly disagree. Few items are reversed scores. The scores range from 0 to 154 155 30. This is extensively used in researches with good psychometric properties [32]. For the present study, the translated version of the Rosenberg Self Esteem Scale [33] was used. This is extensively 156 157 used in researches with good psychometric properties test-retest correlations are typically in the range 158 of .82 to .88, and Cronbach's alpha for various samples are in the range of .77 to .88 [34-35] internal 159 consistency was 0.77, minimum Coefficient of Reproducibility was at least 0.90 [36]. Test-retest 160 reliability for the 2-week interval was calculated at 0.85, the 7- month interval was calculated at 0.63 [37]. RSES scores correlated with depression (r=.65) and anxiety (r=.71) in an ABI population [38]. 161 162 Significant negative correlation with positive view of self, measured using the Head Injury Semantic Differential Scale-III, (r=-.365) has been reported [39]. In current study, the Chronbach alpha 163 164 obtained for RSES was .718.

The Multidimensional Perceived Social Support (MPSS) 165

166 It is a valid 12-item developed by Zimet and colleagues [40] measure used to evaluate perceptions about support from family, friends, and a significant other. The items are divided into 167 168 factor groups relating to the source of support, with scores ranging from 1 to 7. High scores indicate

169 high levels of perceived support. For the current study with patients of chronic illness, the Urdu

170 translation of MPSS [41] was used. The internal consistency (Cronbach's alpha) of MPSS was

171 0.92. It represents good construct validity and internal consistency. In current study, the Chronbach

alpha obtained for PHQ was .844.

173 **Procedure**

174 A permission letter with detailed objectives of the study along with all the questionnaires and 175 measures were provided to the authorities of different hospitals and clinics. After obtaining approval from authorities, the researcher consulted the oncologists and the cardiologists to confirm the 176 177 diagnosis and recruit the sample. Patients were then approached. A written, as well as verbal consent, 178 was taken from the patients or from the caregivers to take part in the study as per requirement. Only 179 those patients and their family members or caregivers who were willing to participate in the study 180 were then brief about the study objectives. Researchers established rapport with the participants 181 individually and assess them based on pre-established inclusion and exclusion criteria. Those patients 182 who were not fulfilling the inclusion criteria were excluded from the study procedure. An open 183 discussion and interviews were scheduled with each participant to get the responses on the scales so 184 that the patients may not feel overburdened and also can discuss their feelings without any fear of 185 judgment. First, the semi-structured demographic form describing age, socioeconomic information, 186 presenting problems, medical history, history of the problem, family, social/ friendship history was 187 then filled. The Patient-Health Questionnaire-9, Multidimensional Perceived Social Support, and 188 Rosenberg Self-Esteem Scale were rated. The participants were appreciated with thanks for their 189 participation in the study. They were also provided with the email addresses to contact for any query, 190 feedback, and related concerns. The administered scales were then scored according to the set criteria 191 and were ready for the statistical analysis. The researcher administered all measures in individual 192 session, during their visits to hospital. The average time taken to complete these measures was 15-20 193 minutes with each participant.

Researcher has openly addressed their concerns and the willingly participated patients in the study were given a right to withdraw the study without any loss. Researcher has discussed and arranged required lecture sessions for the families and patients related to different psychological concerns. Many of the women with mild depressive symptoms were counseled and most of the women with severe depression were referred to psychologists and helped them in their appointments.

199 Statistical Analysis

200 Statistical Package for Social Sciences (SPSS-V. 21) was used to statistically analyze the data. 201 Descriptive statistics (frequencies, percentages, mean, standard deviations, and confidence intervals) 202 were used to analyze the characteristics of the sample. Multiple Regression analysis was used to 203 examine the predictive association of self-esteem and multidimensional perceived social support with 204 depression among women with chronic illness (cardiac and cancer patients in the initial stages). 205 Monthly income for patients with Cardiac issues was from PKR 27500.00- 540000.00 (M=77725.49) 206 for Cancer patients was from PKR39000.00-120000.00 (M=80735.29), and the total sample it was 207 from PKR 27500.00-540000.00 (M = 79230.39)

208 Results

Table 1 refers to the demographic characteristics along with severity of depression of the sample including 102 women (n=51 Breast Cancer and n=51 Angina). The mean age of the entire sample is 47.6 with the mean age of 46.0 for cancer and mean age of 49.0 Cardiac patients. The severity level

of depression in Table 1 shows severe depression on PHQ-9, 34.6% (f=18) in women diagnosed with

213 cardiac (Angina) and 50.9% (f = 50) in women diagnosed with Breast Cancer.

214 Analysis of multiple regression indicates (Table 2) a significant model of the study (F=16.400, 215 p < 0.05). The predictive variables of RSE and MPSS are highly associated with each other (R=.637) and contributed to 40.6% (R^2 =.406) change in depression in women with cardiac illness. Results 216 217 indicate self esteem to be more influential (B=-.306, beta=-.304, t=-2.257, p<.05) as compared to 218 multidimensional perceived social support (β =-.161, Beta=-.415, t=-3.080, p<0.05) to determine 219 depression in cardiac illness (Table3). In addition, findings (Table 4) consider significant others 220 (intimate partners) ($\beta = -217$, Beta = .285, t = -.2.327, p<0.05) as compared to family ($\beta = -.177$, Beta 221 =-.225, t =--1.754, p>0.05) and friends (β =-.033, Beta =-.030, t = -.224, p>0.05) during the stress of their illness in cardiac patients. The predictive variables of RSE and MPSS For cancer patients are 222 also significantly associated with each other (R=.524) and contributed to 27.4% (R²=.274) change in 223 224 depression in women with cancer. Results indicate self esteem to be a significant predictor of 225 depression in a sample of cancer women (B=-.430, beta=-.130, t=-3.296, p<.05) (Table 6). as compared to multidimensional perceived social support (B=-.080, beta=-.054, t=-1.475, p>.05)to 226 227 determine depression in cancer.

Table 1 Demographic characteristics and level of depression of the women with chronic illnesses
 (N=102).

| Variables | Cardiac | | Cancer | | Total | |
|--------------|---------|-------|--------|-------|-------|-------|
| Ages | Ν | % | Ν | % | Ν | % |
| 30-40years | 12 | 23.5 | 21 | 41.17 | 33 | 32.35 |
| 41-50years | 15 | 29.4 | 13 | 25.5 | 28 | 27.45 |
| 51-60years | 24 | 47 | 17 | 33.33 | 41 | 40.2 |
| | М | SD | М | SD | М | SD |
| | 49 | 9.512 | 461 | 1.646 | 47.61 | 0.681 |
| Income group | | | | | | |
| Low | 18 | 35.3 | 21 | 41.2 | 39 | 38.23 |
| Middle | 27 | 52.9 | 21 | 41.2 | 48 | 47.05 |
| Upper middle | 6 | 11.8 | 9 | 17.6 | 15 | 14.72 |

| Nuclear | 20 | 39.2 | 23 | 45.1 | 43 | 42.16 |
|-------------------------------|----|------|----|------|----|-------|
| Joint | 31 | 60.8 | 28 | 54.9 | 59 | 57.84 |
| Severity Level for Depression | F | % | F | % | F | % |
| Mild (5-10) | 00 | 00 | 00 | 00 | 00 | 00 |
| Moderate (11-15) | 11 | 21.5 | 5 | 9.8 | 16 | 15.68 |
| Moderate- Severe (16-20) | 15 | 29.5 | 19 | 37.2 | 34 | 15.68 |
| Sever (21 and above) | 25 | 48.9 | 27 | 53.1 | 52 | 50.98 |

Family Structure

Table 2 Summary of multiple regression analysis of self-esteem and perceived social support as
 predictors of depression among women with cardiac illnesses.

| Model | R | R ² | AdjR ² | Df | F | Sig. |
|-------|------|----------------|-------------------|----|--------|------|
| 1 | .637 | .406 | .381 | 48 | 16.400 | .000 |

Predictors: (constants), RSE (Rosenberg Self-Esteem), MPSS (Multidimensional Perceived Social
 Support Scale)

Table 3 Summary of coefficients of multiple regression analysis of self-esteem and perceived social
 support as predictors of depression among women with Cardiac Illness.

| Model | Unstandardized Coefficient | Standardized Coefficient | Τ | Sig. |
|-------|-------------------------------|-----------------------------|---|------|
| 1 | | | | |

Running Title

| | В | SE | Beta | | |
|----------|--------|-------|------|--------|------|
| Constant | 29.161 | 1.777 | | 16.407 | .000 |
| RSE | 306 | .136 | 304 | -2.257 | .029 |
| MPSS | 161 | .052 | 415 | -3.080 | .003 |
| | | | | | |
| | | | | | |

Note: RSE (Rosenberg Self-Esteem), MPSS (Multidimensional Perceived Social Support)

| 245 | Findings in Table 3(| B=306, beta=3 | 04, t=-2.257, p<.05 |) indicate that one-uni | t increase in self- |
|-----|----------------------|---------------|---------------------|-------------------------|---------------------|
| - | | | | , | |

esteem, decreases depression seems to 306 units while a unit increase in perceived social support

 $(\beta = -.161, Beta = -.415, t = -3.080, p < 0.05)$ decreases depression to 161 units.

with Cardiac Illness.

| Model | Unstandardized Coefficient | Standardized Coefficient | Т | Sig. | |
|-------|-------------------------------|-----------------------------|---|------|--|
| 1 | coefficient | coefficient | | | |

Table 4 Summary of coefficients of multiple regression analysis of self-esteem and components of social support (Significant Others, Family and Friends) as predictors of depression among women

| | В | SE | Beta | | |
|----------|--------|-------|------|--------|------|
| Constant | 28.696 | 1.817 | | 15.796 | .000 |
| RSE | 370 | .142 | 368 | -2.605 | .012 |
| SO | 217 | .093 | 285 | -2.327 | .024 |
| FAM | 177 | .101 | 225 | -1.754 | .086 |
| FRD | .033 | .146 | .030 | .224 | .824 |

262 Note: RSE (Rosenberg Self-Esteem), SO (Significant Others), FAM(Family), FRD(Friends)

263 Findings in Table 4 shows a significant change in depression via self-esteem (β =-.370) and

264 Significant Others as a component of perceived social support show significant effect on depression

265 (β =-.-.217) however, Family (β =-.177) and Friends (β =-.033) in women diagnosed with cardiac 266 illness.

- ____

Running Title

 \mathbf{R}^2 AdjR² Model R Df F Sig. 1 9.080 .524 .274 .244 48 .000 Predictors: (constants), RSE (Rosenberg Self-Esteem), MPSS (Multidimensional Perceived Social 286 287 Support Scale) 288 289 Table 6 Summary of coefficients of multiple regression analysis of self-esteem and perceived social 290 support as predictors of depression among women with Cancer. Т Model Unstandardized **Standardized** Sig. Coefficient Coefficient 1 B SE Beta Constant 28.949 2.295 12.611 .000 RSE -.430 .130 -3.296 .002 -.429 **MPSS** -.080 .054 -.192 -1.475 .147 291 Findings in Table 6 (B=-.430, beta=-.130, t=-3.296, p<.05) indicate that one-unit increase in self-292 esteem, decreases depression seems to 430 units while a unit increase in perceived social support $(\beta = -.080, Beta = -.054, t = -1.475, p < 0.05)$ has an insignificant change of 080 units in depression. 293 294 295 296 Table 7 Summary of coefficients of multiple regression analysis of self-esteem and components of social support (Significant Others, Family and Friends) as predictors of depression among women 297 298 with Cancer. T Model Unstandardized Standardized Sig. Coefficient Coefficient 1

| 284 | Table 5 Summary of coefficients of multiple regression analysis of self-esteem and perceived socia |
|-----|--|
| 285 | support as predictors of depression among women with Cancer. |

| | В | SE | Beta | | |
|----------|--------|-------|------|--------|------|
| Constant | 29.149 | 2.375 | | 12.273 | .000 |
| RSE | 433 | .133 | 431 | -3.263 | .002 |
| SO | 112 | .121 | 135 | .930 | .357 |
| FAM | 006 | .122 | 007 | .051 | .959 |
| FRD | .142 | .130 | .139 | -1.091 | .281 |

299 Note: RSE (Rosenberg Self-Esteem), SO (Significant Others), FAM (Family), FRD (Friends)

300 Findings in Table 7 shows a significant reduction in depression via self-esteem (β =-.433) however,

301 the components of perceived social support show non-significant effect on depression (β =-.-112 via

302 Significant Others, β =-.006 via Family and β =-.142 via Friends) in women with cancer.

303 Discussion

304 The present study aimed to elucidate the role of self-esteem and perceived social support as 305 significant predictors of depression in women diagnosed with chronic illnesses (i.e., Cardiac & 306 Cancer). Analysis revealed that 52% of women diagnosed with breast cancer experience severe levels of depression and about 48% of women with angina experience severe levels of depression. The 307 overall analysis indicates that 15.68% of women diagnosed with chronic illness experience moderate-308 309 severe levels of depression (Table 1). These findings are in line with findings of other Asian 310 countries. A study conducted in Thailand [42] showed that 16.7% of women diagnosed with breast 311 cancer reported being depressed. Similarly, a recent study conducted by Purkayastha and associates [43] found that 21.5% of patients diagnosed with breast cancer experience depression. Other studies 312 313 conducted in Turkey, revealed that 27.7% of women diagnosed with cancer show moderate 314 depression while 19.5% of the females have severe depression [44].

315 A study conducted by Khan and colleagues in Pakistan showed that women with cardiac 316 problems frequently experience severe levels of depression. Findings of the current study in addition 317 to previous literature by Chen and associates in china indicate that the diagnosis of any chronic 318 illnesses (i.e., cancer) adversely affects mental health such as depression, and also challenges their 319 ability to cope with the diseases. In the Pakistani context, self-esteem and social support have a 320 significant role in mental health and specifically in depression. The findings of the study (see Table 2) show a significant correlation among the predictive variables in women diagnosed with cardiac 321 issues (R=.637) and an overall 40.6% (R^2 =.406) change in depression was contributed by self-esteem 322 and perceived social support with a significant model of the study (F=16.400, p<0.05). Findings 323 324 show that both self-esteem and perceived social support have a significant predictive association with 325 depression, however results (B=-.306, beta=-.304, t=-2.257, p<.05) indicate that self-esteem is slightly more influential than perceived social support (β =-.161, Beta=-.415, t=-3.080, p<0.05) to 326

327 determine depression (see Table 3). When there is a one-unit increase in self-esteem, depression 328 seems to decrease by 306 units while a unit increase in perceived social support decreases depression 329 to 161 units. The study findings are supported by robust pieces of evidence from past researches like 330 Oin and colleagues. The findings of the study (see Table 5) also shows a significant correlation among the predictive variables (R=.52) and an overall 27.4% (R^2 =.274, F=9.08, p<0.05) variance in 331 332 Depression was explained by self-esteem and perceived social support in women with cancer which 333 signifies the fitness of the study model. The coefficients of this model of the study highlighted self 334 esteem to be a significant contributor to depression in women with cancer (B=-.430, beta=-.130, t=-335 3.296, p<.05) (see Table 6).

336 Self-esteem is believed to be one of the most important factors associated with depression in 337 women diagnosed with cancer [45]. The potential explanation for low self-esteem in these women 338 causing depression can be due to the treatment regime they receive like chemotherapies which alter 339 the body such as removal of the breast and a significant hair fall, leading not only to a low level of 340 self-image but also effects their inclusion in social circles and to maintain their intimate relationships. 341 These reactions of the diseases and the associated treatment results in negative schemas related to 342 self, causing them to be depressed. Similarly, study findings by Sharma and colleagues Sharma and colleagues [46] highlighted that in cardiac patients' higher level of self-esteem significantly lowers 343 344 the level of depression. This association can be explained in a way that positive self-esteem is linked 345 with mental well-being, pleasure, adaptability in situations, success, accomplishments, and satisfaction, on the other hand, low self-esteem can lead to undesirable consequences like depression 346 347 Sharma and colleagues.

348 Taking into account the study findings, perceived social support also exerts a significant role in 349 the alleviation of depression. Similar results were shown by previous other researches and considered 350 social support as a mechanism that produces hope and optimistic beliefs which has a favorable 351 outcome on health. A high level of social support helps the individuals to believe that they can control their illness which reduces the disease-related distress and pain and inculcates hope for 352 353 healthier outcomes [47]. Social support was found to be associated with reduced depressive 354 symptomatology [48]. This is related to the belief that social support improves psychological well-355 being by fulfilling an individual's belongingness and reducing loneliness and depressive 356 symptomatology [49]. In cultures like Pakistan people prefer to live in joint family setups and look 357 after others' needs and problems. The stressful circumstances, therefore, need social support to be 358 handled appropriately. People have expectations from others to gain support during the time of stress, 359 and the availability of support has a desirable influence on the psychological wellbeing hovering the 360 sufferer's optimistic beliefs. However, the unavailability of social support makes them hopeless and this could increase the risk of depression. Moreover, a deep analysis of the components of perceived 361 social support in the current study in cardiac patients reveals significant others (intimate partners) (β 362 = -217, Beta = .285, t = -.2.327, p<0.05) as compared to family (β = -.177, Beta = -.225, t = --1.754, 363 p>0.05) and friends (β =-.033, Beta =-.030, t = -.224, p>0.05) are considered to be more helpful 364 during the stress of such illness. Previous findings obtained by Sharma and colleagues also had 365 366 stressed the importance of significant others in the time of illness as people living with partners 367 experience depression in the face of stressful situations in comparison to being alone.

In contrary to the cardiac patients findings related to women diagnosed with cancer (B=-.080, beta=-.054, t=-1.475, p>.05), reveal that the perception of social support is not very significant in the determination of depression (see Table 6) i.e., there is a very insignificant decrease of 080 units of depression with perceived social support. The findings of the study related to cancer women can be explained that the families or other care givers get anxious about the diagnosis of illness like cancer 373 therefore the diagnosed women are mostly not comfortable to seek social support. Women diagnosed with cancer don't share problems related to the illness with family and friends as they experience 374 them to be anxious [50]. Moreover, some patients consider support extended by the family as 375 overprotection and regard it to be overreaction and challenge to their openness. Inadequate social 376 377 support is mostly responsible for emotional distress [51-52] consequently a poor adaptability to the situation [53]. Furthermore, people with chronic health issues such as cancer are going through 378 379 sufferings and severe depression, and even when they receive support from the environment, they are 380 unable to acknowledge, hence it does not reduce the intensity of illness. They consider the social 381 support as sympathy, and get irritable for receiving support and shut down the entry to receive 382 support from the environment. This could be because of the nature of illness where patient feels 383 helpless and thinks that their life is going to be ended. One of the possible reasons for such findings 384 in a country like Pakistan can be that people with the diagnosis of chronic illness may have certain 385 physical limitations and they consider themselves dependent on others. In such conditions, they feel themselves to be a burden on others and worthless and have a fear that other people in family or 386 387 friends may get judgmental and evaluate them negatively. Most of the sample also has shared their 388 feelings like "I am a burden on others and this is the worst condition I have ever gone through", "I prefer to have an end of my life rather than depend on others and to cause extra work for them." Such 389 390 feelings cultivate helplessness and hopelessness and consequently suffer from depression.

391 Like other studies present study has few limitations. The tools used in the study are quantitative 392 so the qualitative indicators of these variables should be obtained in future researches. Further, this 393 study was conducted using cross sectional design, patients with chronic illnesses (cardiac & cancer), 394 and the temporal association between the outcome and the exposure could not determine. And the 395 important limitation is the small sample size, so we recommend inclusion of more females by 396 including male patients with these health conditions and should see the difference between groups on 397 the variables of self esteem, social support and depression. The differences between cancer as well as 398 cardiac women were not compared for the level of depression, self esteem and perception of social 399 support.

The effects of different treatments or drugs which have potential impacts on the depression were not studied. Women with different types of cancer or heart issues can be studied for further studies. Different durations for the illness can also have different effect on the levels of depression, self esteem and perception of social support, which is one of the greatest limitations of the study.

404 Conclusions

The findings of the study in line with prior researches revealed that self-esteem and perceived social 405 406 support is significant predictors of depression in women diagnosed with chronic illness. To sum up the study findings it can be stated that the occurrence of intimidating chronic illness in general and 407 cancer and cardiac problems in particular, is alarming all over the world and in Pakistan, it is 408 409 proliferating very fast. These illnesses have not only limited physical health but also influenced the psychological wellbeing of women. The diagnosis of these illnesses is a stigma in cultures like 410 411 Pakistan, due to which the diagnosed women critically evaluate themselves and confine their social 412 interactions. So, chronic illness becomes a key stressor to limit self-sufficiency and independence as a consequence of feelings of helplessness and hopelessness. The diagnosed population is thus 413 414 overwhelmed by irrational thoughts and is predisposed to get negative feedback and to negatively evaluate their abilities. As a result of their self-disparaging thoughts and a strong feeling of 415 416 inadequacy they mainly isolate themselves from the social connections and show difficulty in gaining 417 satisfactory acceptance and approval in a social group. Thus, low self-esteem and perception of lack of social support is detrimental to well-being and cultivate hopelessness with no interest in life. 418

- 419 Based on the findings understanding these factors can better help planning of treatments for the
- 420 patients with the prevailing mental health problems associated with the chronic illness.

421 Declaration

422 Ethical approval and consent to participate

- 423 The study was conducted according to the guidelines of the Declaration of Helsinki and approved by
- 424 the Departmental Ethical Review Committee, Institute of Clinical Psychology, and the University of
- 425 Karachi. (NO: ICP-1(101)/1040-A, November 19, 2018)." Written Informed consent was taken and
- 426 signed by all participants.

427 Consent for publication (Not applicable)

428 Availability of data and materials

429 Data can be provided by the corresponding author if needed without any due reservation.

430 **Competing interests**

431 The authors declare that the research was conducted in the absence of any commercial or financial 432 relationships that could be construed as a potential conflict of interest.

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435 Authors' contributions

436 Conceptualization, NB; Formal analysis, NB and SS; Methodology, NB and SS; Writing-original

- 437 draft, SS and SA; Writing-review & editing, SS and SA. All authors have read and agreed to the 438 published version of the manuscript
- 438 published version of the manuscript.

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442 Authors' information (optional)

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