



The relationship between social support and life expectancy in cancer patients during chemotherapy; an original study

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Abstract

Introduction: Developing patients' tolerance in receiving treatment and enhancing their life expectancy has been increasingly recognized as the important end-points in cancer disease.

Objectives: This cross-sectional study aimed at exploring the relationship between received social support and its correlation with life expectancy in cancer patients during chemotherapy.

Patients and Methods: Around 210 cancer patients were selected through simple sampling procedure from the clinics of Isfahan medical science University, Iran. Sherbourne and Stewart questionnaire and Miller questionnaire were used to assess social support and life expectancy, respectively. The collected data were analyzed by independent *t* test and linear regression.

Results: We found a significant positive correlation between total social support score and life expectancy scores. Additionally, a significant positive correlation between different aspects of social support — tangible support, emotional support and kindness—with positive social interaction and life expectancy was detected.

Conclusion: Our results highlights that social support may develop life expectancy in cancer patients depending on the extent of disease; however, extensive and longitudinal studies on social support and life expectancy in cancer patients should be performed.

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Introduction

Cancer is featured by abnormal cell growth and the loss of cell differentiation with the potential to invade or spread to other parts of the body. In fact, cancer is a group of diseases with various signs and symptoms rather than a single disease with specific cause (1).

Confronting with cancer can be a stressful event, which jeopardizes different aspects of the patient's individual health such as physical health, mental health, and family health. The patients who suffer from different types of cancers have different mental disorders ranging from depression, anxiety, incompatibility with the disease, and decreased confidence to emotional disorders, fear of relapse, and death (2). Studies show that cancer causes various negative consequences including disappointment, decreased general health, and decreased quality of life, of which anxiety, depression, disappointment are more common (3). Patients suffering from chronic physical diseases, particularly cancer, perceive

Key point

In a study on 210 cancer patients, we found that social support may develop life expectancy.

life expectancy as the important and part of their life. Most studies on life expectancy reveal that patients start perceiving it as a threat event after the diagnosis of cancer (4).

Moreover, life expectancy is defined as an internal force that can lead to life fulfilment and enable the patients to see beyond the status quo. The lack of life expectancy and purposeful life lead to the decreased quality of life and desperate beliefs. The important features of life expectancy are as follows: orienting the future, having positive expectations, having a purpose, having realistic beliefs, setting goals, and setting up internal communication (5). In contrast, disappointment is defined as tolerating insurmountable conditions in which achieving goals is not expected, and it



relates to depression, wish for death, and suicide. In other words, life expectancy, which involves future imagination and attention, makes it possible for an individual to make attempt assuming that positive results are likely to be achieved. Patients with chronic diseases may show different physiological, psychological, and emotional needs; thus, fulfilling these needs and increasing their life expectancy are considered as a part of the treatment (6).

Therefore, the most beneficial choice in terms of both improvement of the disease and fulfillment of the needs is the interventions encompassing physical treatment as well as psychological treatment to develop life expectancy. Cancer and life expectancy are interrelated in two ways. First, hopeful patients are more concentrated on the problem and actively engage themselves in treatment process, and they are more likely to do cancer screening behaviors. Second, those who think hopefully, can show lower distress and higher compatibility with diagnosis and treatment of cancers (7). Moreover, patients with higher hope are more resistant to long and painful treatments. Promoting hope which makes life meaningful, can help patients be compatible with cancer, decrease their psychological suffering, and increase their life expectancy as well as their general health (8).

Social support is the individual's perception or experience of being loved, being protected, being respected, and being a member of a social network with all its contributions and responsibilities. Due to the lack of organization of social support by institutions and due to the important role of the family and relatives, support is mostly provided by the family, which is the expectation of support in Iran depends on family support. Thus, it is absolutely essential for family to understand the social supportive patterns and become aware of the relationship between social support and helpfulness in cancer patients (9).

Objectives

Regarding the importance of social support and helpfulness in patient's capacity to endure chemotherapy, and considering the importance of hope in struggling against cancer, the present study aims at investigating the relationship between social support and life expectancy in cancer patients during chemotherapy.

Patients and Methods

Study design

The aim of this cross-sectional study is to investigate the relationship between social support and life expectancy in cancer patients during chemotherapy between the years of 2017 and 2018. Simple sampling procedure was used for selecting the participants while different criteria were used in sampling procedure including, having cancer, conducting at least a period of chemotherapy, having a minimum literacy to fill out the questionnaire, among the patients between the ages of 20 to 70 years

old. Moreover, suffering from other chronic diseases, taking anti-depression drugs, and having a background of psychological disorders were considered as the exclusion criteria for the present study.

Data gathering

Based on sampling criteria and statistical test for sample size, 210 cancer patients were selected during chemotherapy period. The lowest correlation coefficient was estimated ($r = 0.2$).

A researcher-made demographic survey was used to obtain information about the participants' age, gender, type of cancer, and duration of the disease. Miller Hope Scale (MHS) was used to measure life expectancy, and medical outcomes study-social support survey (MOS-SSS) including five items namely, 'informational support', 'tangible support', 'emotional support', 'kindness', and 'positive social interaction' was used to measure social support.

MHS is a diagnostic questionnaire which includes 48 items based on the overt and covert state of hope and inability. In addition, MHS is a Likert questionnaire scoring from five to one in order to indicate participants' choice from totally agree to totally disagree respectively. In other words, a participant selects the item and scores it which applies to him, in this way, his hope or inability is measured. Moreover, the total score ranges from 40 to 240, that is, 40 is an indicator of the maximum inability, while 240 is an indicator of the maximum hope. Additionally, Abdi and Asadi used Cronbach's alpha reliability formula to examine the reliability of MHS in Iranian context which was reported to be 0.91 (10).

Sherbourne and Stewart questionnaire was used to measure social support. This questionnaire includes 19 scales with five subscales. The subscales relate to; tangible support which measures material aid and behavioral assistance (items 9 to 12), emotional support which measures positive affection, empathy, and encouragement for expressing emotions (items 1 to 8), informational support which measures guidance, notification, and feedback (items 1 to 8), kindness which measures expressing love and affection (items 16 to 18), and positive social interaction which measures doing recreational activities (items 13 to 15). This questionnaire is a self-report one in which the participant's agreement or disagreement to an item was indicated through five numbers (i.e. 1; never, 2; rarely, 3; sometimes, 4; often, 5; always). Minimum total score in this questionnaire is 19, while the maximum total score is 95. The total score is measured by adding up the item scores. The higher the total score is, the more optimum social support the participant has. Based on Cronbach's alpha reliability formula, the reliability of this scale was reported to range from 0.74 to 0.93. However, psychology experts reported the reliability of this questionnaire to be 0.97. Regarding

its validity, Tamannaefar et al verified both face validity and content validity (11). Moreover, a researcher-made demographic survey was designed to gather the participants' demographic and clinical information.

Data analysis

To analyze the collected data, SPSS (version 20) was utilized. Kolmogorov-Smirnov Z-test was used to test the normal distribution of the data. Descriptive statistics including percent, mean, standard deviation (SD) were used to describe the collected data. In addition, *t* test, Pearson's and Spearman's test, and linear regression were used to analyze the collected data. The *P* value was determined to be 0.05.

Results

The present study was conducted to investigate the relationship between social support and life expectancy in cancer patients during chemotherapy in clinics of Isfahan medical university between the years of 2017 and 2018. The participants' age ranged from 20 to 60. Mean and standard deviation for the diagnosis time of the disease was 1.2 ± 1.4 years (Table 1).

The mean and standard deviation of the total scores for social support was 69.3 ± 12.2 . Descriptive statistics for each aspect of social support are shown in Table 2.

The score of life expectancy was reported to be 181.9 ± 31.9 . Based on the linear regression analysis, there was a meaningful positive relationship between social support scores and life expectancy ($P < 0.001$, $r = 0.929$). In addition, as Table 3 shows, a meaningful positive relationship between different aspects of social support including emotional support, informational support, kindness, and positive social interaction was detected ($P < 0.001$). However, there was no significant relationship between age and social support and life expectancy ($P > 0.05$). Similarly, there was no meaningful relationship between the time of diagnosis of the disease and the total scores of social support and life expectancy ($P > 0.05$). Also there was a significant reverse relationship between age and emotional/ informational support ($r = 0.13$, $P = 0.04$) and age with kindness ($r = -0.14$, $P = 0.03$). Independent *t* test indicated that the total score of social support ($P = 0.56$) and life expectancy score ($P = 0.32$) do not significantly differ across both genders. Furthermore, the results indicated that the mean of total scores for social support and life expectancy in patients in non-metastasis stage were significantly higher than those in patients in metastasis stage ($P < 0.001$).

As Table 3 shows, multiple regression analysis indicated that all aspects of social support predicted life expectancy variable meaningfully. Furthermore, among the aspects of social support, kindness obtained the highest score which was followed by emotional/ informational support, positive social interaction, and tangible support respectively.

Table 1. Mean \pm SD of the participants' demographic data

Variable	
Age, mean (SD)	44.9 \pm 12.2
Time of diagnosis (year), mean (SD)	1.2 \pm 1.4
Gender, No. %	
Female	101 (48.1)
Male	109 (51.9)
Stage of disease	
Metastasis	129 (61.4)
Non-Metastasis	81 (38.6)

Table 2. Descriptive statistics for each aspect of social support

Aspects of social support	Mean \pm SD
Total score	69.3 \pm 12.2
Tangible support	15.4 \pm 3.1
Emotional/Informational support	31.4 \pm 4.9
Kindness	10.8 \pm 2.8
Positive social interaction	11.5 \pm 2.6

Table 3. Linear regression analysis for predicting life expectancy based on social support aspects

Social support aspects	Unstandardized coefficient	Standardized coefficient	t	P value
Tangible support	2.133	0.203	4.88	<0.001*
Emotional/ Informational support	1.955	0.300	7.68	<0.001*
Kindness	3.908	0.338	10.89	<0.001*
Positive social interaction	2.652	0.219	6.20	<0.001*

*Significant; $P < 0.001$.

Discussion

The results of the study revealed a meaningful positive relationship between life expectancy and social support. In addition, statistical analysis confirmed the positive relationship between the aspects of social support and life expectancy. Regarding the stage of disease factor, the patients who were in non-metastasis stage had more life expectancy and social support than those who were in metastasis stage of cancer. This finding is in line with the finding of Hann et al who investigated the effect of social support on depression in cancer patients in metastasis stage. They reported that social support ameliorated depression and can be considered as an effective intervention in disease (12). Among cancer patients, receiving social support from others can protect them against the negative consequences of the disease, thus, it has a strong relationship with psychological functions of the patient (13). This finding is in line with the results reported by Madani et al who studied social support and disappointment in cancer patients. The results of their

study unveiled the negative correlation between social support and disappointment (14). In another study conducted by Bibi and Khalid the relationship between social support and death anxiety in cancer patients was explored. Their results indicated, a meaningful negative correlation between social support and death anxiety, which shows, the importance of social support in cancer patients (15).

For instance, in a study conducted by Taei et al, 100 cancer patients were examined in terms of social support and life expectancy. The results revealed a positive relationship between social support and life expectancy in cancer patients (16). In addition, Khodapanahi et al conducted a research on cancer patients and reported a positive relationship between social support including its aspects and hope (17).

Arora et al investigated the effect of informational support, emotional support, and decision making on the life quality of the patients with breast cancer. The results unveiled that the aspects of social support improved the patients' life quality meaningfully (18). Similarly, the findings of the present study show that the patients in metastasis stage and in more advanced stages of cancers have lower life expectancy in comparison to those in non-metastasis stage of the cancer. In a meta-analysis study, Moradi et al (19) explored the results of the previous studies conducted on the relationship between psychological health and social support in Iran. The results of this meta-analysis study indicated that the effect of social support on psychological health in Iran is really high than the level of the global average, highlighting the significant role of social support.

Cancer patients can benefit from social support while the results of the previous studies as well as our study have confirmed this finding. We found, increased life expectancy through social support as well as hopeful thinking can improve the patients' life in two ways. First, hopeful individuals can concentrate on the problem and actively engage themselves in treatment process. In addition, they are more likely to do cancer screening behaviors regularly. Second, individuals who think hopefully have lower distress and have higher compatibility with diagnosis of the disease and its treatment. Furthermore, patients with higher hope are more resistant to long and painful treatments. Colloca and Colloca conducted a meta-analysis study to explore the findings of the previous studies on the relationship between social support and life quality in cancer patients. They reported that 54-percent of the patients needed psychological interventions. In addition, social support can lead to high quality of life (20).

Conclusion

Our study showed a meaningful positive relationship between social support and life expectancy. In addition, cancer patients who are in advanced stages of the disease

and in metastasis stage show lower life expectancy and social support than those in non-metastasis stage. Therefore, based on the significant role of life expectancy in treatment procedure and life expectancy, it seems that developing social support to boost life expectancy, particularly in cancer patients, can be absolutely beneficial.

Limitations of the study

The present study has some limitations. First, the distinction between different types of cancer and their relationship with life expectancy and social support were not considered. Second, demographic information did not encompass factors such as, the number of family members, cultural level, educational level, and family income. Thus, it seems fruitful for further studies to conduct similar studies considering these factors.

Authors' contribution

HA, ZAP and MY conducted the research and prepared the primary draft. HA conducted an English edit and improved the manuscript. AH finalized the manuscript. All authors read and signed the final paper.

Conflicts of interest

The authors declare that they have no competing interests.

Ethical issues

The research followed the principles of the Declaration of Helsinki. The Ethics Committee of Isfahan University of Medical Sciences approved this study. The institutional ethical committee at Isfahan University of Medical Sciences approved all study protocols (ir.mui.research.rec.1397.142). All participants completed a self-declaration agreement before the study to ensure the ethical issue. Accordingly, written informed consent was taken from all participants before any intervention. This study was extracted from M.D thesis of Mehrdad Yusefzadeh at this university (Thesis#397005). Moreover, ethical issues (including plagiarism, data fabrication, double publication) have been completely observed by the authors.

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