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Socio-Economic and psychological consequence of cancer from patient's perspective in South-Western Punjab

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Abstract

Cancer is a great threat not only to health of the person concerned but it plays havoc with the whole family of the victim. It not only disturbs the socio-economic fabric of the family but dwindles the whole development status, to meet the cost and repay the financial debt, the households suffering from cancer have to cut down their own essential needs. The present study was conducted to trace the Socio-Economic and Psychological Consequence of Cancer from Patient's Perspective in South- Western Punjab. Two districts i.e. Bathinda and Sri Muktsar Sahib were randomly selected. Majority (85.6%) of the sampled respondents were above 40 years of age. Majority (80.6%) of the respondents had not faced any marital or family conflict. Major cut was on food items with the mean score of 64.80 in the region. Half of the (42.5%) respondents felt that due to cancer treatment identity or image of the body bothered them a lot. Thirty per cent of the respondents had taken loan from multiple sources including both institutional and non-institutional sources. The anxiety level is highly significant with the socio-economic parameters with the chi-square value 8.197 for gender, 38.39 for age, 7.77 for marital status, 18.09 for income and 31.37 for family size. Anxiety level, marital conflicts, debt burden and economic loss had significantly contributed towards the severity of consequences. Support system at family level and at community level could prove too helpful and goes a long way in mitigating the socio-economic and psychological consequences faced by victims.

Keywords: Cancer, socio-economic, psychological consequences, financial cost

Introduction

In spite of a good deal of scientific advancement in fields of diagnosis and treatment, threat of cancer looms large on Punjab in general and rural Punjab in particular. Cancer is a great threat not only to health of the person concerned but it plays havoc with the whole family of the victim. It not only disturbs the socio-economic fabric of the family but dwindles the whole development status. To meet the financial cost and repay the financial debt, the households suffering from cancer have to cut down their own essential needs. Development status of individual and family got affected, if one had to sacrifice one or more of the essential components of quality of life i.e. food, clothing, housing, education, health and social ceremonies (Singh *et al*, 2013, Parkin *et al* 2001) ^[19, 14].

The agrarian sector of Punjab had undergone a radical change in the last half century since the advent of green revolution in the state. It made the country self-sufficient in food grains but at a humongous human cost that is taking its toll now (Singh, 2017) ^[20]. The Malwa region of Punjab, India, is facing an unprecedented crisis of environmental health linked to indiscriminate, excessive and unsafe use of pesticides, fertilizers and poor groundwater quality. The region has been described as India's "cancer capital" due to abnormally high number of cancer cases, which have increased 3-fold in the last 10 years. The high use of pesticides, along with environmental and social factors, is responsible for the high concentration of pesticide residues in the food chain of this region. Moreover, many banned and restricted pesticides are still in use in this region, warranting strict periodical health checkups and other interventions (Kaur, 2013, Mittal, *et al* 2014, Pandhi, 2012, Singh *et al* 2013, Singh, 2017) ^[9, 11, 13, 19, 20].

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Arsenic level in water has reached at an alarming proportion in the Malwa hinterland heading to a rise in cancer cases in the cotton belt. The excessive use of pesticides and fertilizers is said to be the reason behind rising arsenic level in water causing higher incidence of cancer in the region. The permissible level of arsenic in groundwater is 0.01 mg per liter but it was found to be as high as 208 mg in water from hand pumps in various areas of Mansa district of Punjab (Kamal, 2010) [8]. There is a higher concentration of bromine in the water samples in the south-west Punjab. Bromine is an established carcinogenic substance and the phosphatic fertilizers used for cotton cultivation further add to bromine concentration (Singh, 2011) [18].

Punjab stands first as far chemical fertilizer consumption is concerned. Punjab consumption 5690 metric tons of fertilizers in 2017-18, instead this has resulted in conversion of the decorated title of "Food Bowl of India" to "Cancer capital of India" (Sharma and Thaker, 2011) [16]. Sedentary lifestyle, food full of preservatives, tobacco and alcohol consumptions and radiations are other external factors held directly or indirectly responsible for cancer. Bio chemical determinants and ecology of the area are thought to be the major reasons behind unbridled growth of cancer cells (Anonymous, 2015) [1]. According to Cancer awareness and state wise door to door campaign, the state average of cancer cases of Punjab (911/million) is much higher than that of the national average (800 per million) of cancer prevalence. The cases of cancer per million are highest in the Malwa region (1089) as compared to *Doaba* (881) and *Majha* (647) respectively. South Western part (Cotton Belt) of Malwa region has become infamous as cancer region of Punjab with highest average of 1168 per million people, thus corroborates the common perception that cancer is most widespread in South Western Punjab (GOP, 2013). With this backdrop present study was conducted to trace the Socio-Economic and Psychological Consequence of Cancer from Patient's Perspective in South- Western Punjab.

Methodology

At the first stage two districts i.e. Bathinda and Sri Muktsar Sahib (hereafter, Sri Muktsar Sahib will be referred as Muktsar in the text) were randomly selected to make the study representative of whole South Western region. Therefore, the sample constitutes of two districts. At the second stage two blocks were randomly selected from each selected district to obtain a total of four blocks. At third stage three villages from each block were taken for the purpose of investigation. So, the present study was conducted on four blocks. From four selected blocks twelve villages was randomly selected from South Western region of Punjab. After the selection of the villages a list of all the person suffering from cancer or had cancer (though recovered presently) during the period of 5 years preceding the study comprised the sample for study. The respondents were selected from each district on the basis of records maintained by the hospitals both Public and Private, ANM (Auxiliary Nurse Midwives), Chemists, Sarpanches, Change Agents were contacted. At the final stage out of 160 respondents, 56 males and 104 females from all the villages were selected in all. Thus, total sample size comprised of 160 cancer patients from all the twelve villages of selected districts. The research instrument used in the study was interview schedule. The data was tabulated and analyzed on the basis of cumulative cube root method, E-Garret's ranking technique and Multi-linear regression.

Cumulative cube root method

Statistical analysis was carried out in order to draw statistical inferences with respect to anxiety level of cancer patients in rural areas of south western region of Punjab. Score of anxiety level was assigned to an individual cancer patient by taking into account the various parameters like isolation, anxiety, fear, discrimination and depression. Thus, a series of anxiety level of all the individual cancer patients was developed which further divided into three categories i.e. low, medium and high, by using cube root methods. The formula is given below:

$$\text{Low} = L + \frac{T/3 - c.f}{\sqrt[3]{f}} \times C$$

$$\text{Medium} = L + \frac{2T/3 - c.f}{\sqrt[3]{f}} \times C$$

High = greater than the value medium

Where,

L is the lower limit of class interval

T is the total sum of cumulative frequency

c.f is the cumulative frequency of corresponding class interval

$\sqrt[3]{f}$ is the cube root of the frequency

C is the value of class interval

Multi Linear Regression

Multiple linear regression analysis was carried out to examine the factor affecting severity of consequences of the cancer patients. The model is as follows:

$$Y = a + b_i X_i$$

i.e.

$$Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + b_6 X_6 + b_7 X_7 + b_8 X_8 + b_9 X_9 + b_{10} X_{10}$$

Where:

Y = Dependent variable (Series of aggregate score of cancer patients)

Independent variables (X_i):

X₁ to X₁₀ are the ten independent variables in the model

X₁ = Beliefs

X₂ = Anxiety level

X₃ = Stage of cancer

X₄ = Marital conflicts

X₅ = Life Style

X₆ = Environmental factor

X₇ = Debt burden

X₈ = level of safety measures

X₉ = Hygienic drinking water

X₁₀ = Economic loss

a = Constant term

b_i = Coefficient of independent variables

i = 1, 2, 3,-----10

Results and Discussion

Consequences of cancer from patient's perceptive and from the perceptive of his/herfamily has been analyzed to understand the socio-economic and psychological impact of the disease and is discussed under following heads.

Social consequences

Study made an attempt to analyse the social consequences of cancer upon the victim and his/her family. Analysis was based upon the perception of the victim as well as his/her family. Study explored the social impact cancer had made if any, on relationships with spouse, amongst family members and with acquaintances and went deeper into the context to record the impact cancer had.

Marital Conflict/ Family

Cancer devastates not only the victim but changes the social equation with in the family. Review of literature testifies the fact that cancer doesn't just derail the economy of the household but whole social fabric and family environment got disrupted due to it (Singh *et al* 2013) [19]. Study also made an attempt to explore the social impact of cancer and investigated its impact of marital relationship.

Distribution of respondents on the basis of marital or family

conflict after onset of cancer in family is presented in the Table 1. Overall, it was observed that majority (80.6%) of the respondents had not faced any marital or family conflict as they divulged that since their relationship with spouse had been strong, they were rather sympathetic and supportive towards them in the hour of need. Only 19.38 per cent of the respondents had marital as well as familial conflict due to cancer after its onset. Unable to bear the hefty expenses incurred towards the treatment of cancer, 20.00 per cent of these female victims who reported about conflicts had to separate from their husbands. They were sent to their parents place for treatment and recuperation. Around half of those females (45.1%) who reported about conflicts divulged that as due to disease and during the course of treatment they had lost their fertility and reproductive capacity, they had strained relations with their spouse. Two-third of those who report about conflict had family conflict due to disease.

Table 1: Distribution of respondents on the basis of marital/family conflict after the onset of cancer (Multiple response)

Marital Conflict/ Family Conflict	Bathinda (n ₁ =76)			Sri Muktsar Sahib (n ₂ =84)			South Western Region (N=160)		
	Male (n=22)	Female (n=54)	Total (n=76)	Male (n=34)	Female (n=50)	Total (n=84)	Male (n=56)	Female (n=104)	Total (n=160)
Yes	3 (13.64)	11 (20.37)	14 (18.42)	2 (5.88)	15 (30.00)	17 (20.24)	5 (8.93)	26 (25.00)	31 (19.38)
No	19 (86.36)	43 (79.63)	62 (81.58)	32 (94.12)	35 (70.00)	67 (79.76)	51 (91.07)	78 (75.00)	129 (80.63)
Impact	Male (n=3)	Female (n=11)	Total (n=14)	Male (n=2)	Female (n=15)	Total (n=17)	Male (n=5)	Female (n=26)	Total (n=31)
Separation	1 (33.33)	1 (9.09)	2 (14.28)	-	4 (26.66)	4 (23.52)	1 (20.00)	5 (19.23)	6 (19.35)
Loss of fertility	-	7 (63.63)	7 (50.00)	-	7 (46.66)	7 (41.17)	-	14 (53.84)	14 (45.16)
Family Conflict	2 (66.66)	4 (36.36)	6 (42.85)	2 (100.00)	13 (86.66)	15 (88.23)	4 (80.00)	17 (65.38)	21 (67.74)

Note: Figures in the parentheses indicate percentage

Change in behavior of family members and spouse

There is generally a myth that, cancer is contagious, so social distance need to be maintained i.e. there should not be any exchange of food and other items with cancer affected individual and his families. But as a matter of fact it has been scientifically proven that most cancers are not contagious and social support system goes a long way to adaption, mitigation and rehabilitation of cancer victims (Durando *et al* 2007) [3]. In order to explore the support system available the study further explored the ways in which spouse and other family

members come up with the disease of the respondent.

The distribution of respondents on the basis of change in behavior of family members is presented in Table 2. Considering an entire sample of 160 respondents, it was propounded that majority (82.00%) of the respondents did not reported any change in the behavior of family members and spouse towards their after the disease got diagnosed. Instead their family members were too much cooperative and supportive to them in every possible way. But more than one sixth

Table 2: Distribution of respondents on the basis of change in behavior of family members and spouse *(Multiple response)

Change behavior	Bathinda (n ₁ =76)			Sri Muktsar Sahib (n ₂ =84)			South Western Region (N=160)		
	Male (n=22)	Female (n=54)	Total (n=76)	Male (n=34)	Female (n=50)	Total (n=84)	Male (n=56)	Female (n=104)	Total (n=160)
Family members	5 (22.73)	7 (12.96)	12 (15.79)	1 (2.94)	15 (30.00)	16 (19.05)	6 (10.71)	22 (21.15)	28 (17.50)
Spouse	2 (9.09)	8 (14.81)	10 (13.16)	-	15 (30.00)	15 (17.86)	2 (3.57)	23 (22.12)	25 (15.63)
Change*	Male (n=7)	Female (n=15)	Total (n=22)	Male (n=1)	Female (n=30)	Total (n=31)	Male (n=8)	Female (n=45)	Total (n=53)
Isolated in room	2 (28.57)	3 (20.00)	5 (22.72)	1 (100.00)	8 (26.66)	9 (29.03)	3 (37.50)	11 (24.44)	13 (24.52)
Separate clothes	3 (42.85)	2 (13.33)	5 (22.72)	-	4 (13.33)	4 (12.90)	3 (37.50)	6 (13.33)	9 (16.98)
Food	7 (100.00)	8 (53.33)	15 (68.18)	1 (100.00)	9 (30.00)	10 (32.25)	3 (37.50)	18 (40.00)	26 (48.14)
Utensils	3 (42.85)	4 (26.66)	7 (31.81)	1 (100.00)	3 (10.00)	4 (12.90)	4 (50.00)	7 (15.55)	11 (20.75)

Note: Figures in the parentheses indicate percentage

(17.5%) of the respondents faced discrimination by their closed ones during this phase. More than one third of male victims and one fourth of females reported that they were isolated from the rest of the house/ members and were made to live in a separate room. Males (37.50%) and females (13.33%) victim's clothes were also separated from the rest of the members. Same discriminatory practices were followed for food and utensils, as is clear from Table 2. In the region, 50 per cent of male respondents had to face discrimination by using separate utensils from the family.

Migration

The study (Table 3) found that cancer had compelled some

victims for migration in search of better avenues of treatment and source of income. Though just 3.13 per cent of the respondents disclosed that due to socio-economic pressure of cancer treatment they had decided to leave their native village. Migration to nearby city was done by 2.5 per cent respondents. One female respondent of Gyana village migrated from Malkana village because there was no one who could take care of her and his bedridden husband. In spite of her bad physical conditions due to cancer she was compelled to do labor job to meet her both ends, which she was unable to get at her native village.

Table 3: Distribution of respondents on the basis of migration

Migration	Bathinda (n ₁ =76)			Sri Muktsar Sahib (n ₂ =84)			South Western Region (N=160)		
	Male (n=22)	Female (n=54)	Total (n=76)	Male (n=34)	Female (n=50)	Total (n=84)	Male (n=56)	Female (n=104)	Total (n=160)
No	21 (95.45)	52 (96.30)	73 (96.05)	33 (97.06)	49 (98)	82 (97.62)	54 (96.43)	101 (97.12)	155 (96.88)
Another illage	-	1 (1.85)	1 (1.32)	-	-	-	-	1 (0.96)	1 (0.63)
City	1 (4.55)	1 (1.85)	2 (2.63)	1 (2.94)	1 (2)	2 (2.38)	2 (3.57)	2 (1.92)	4 (2.50)

Note: Figures in the parentheses indicate percentage

Economic Consequences

Study made an attempt to analyse the economic consequences of cancer upon the victim and his/her family. Study explored the economic consequences like expenditures cut, amount of debt and financial loss due to cancer.

Expenditure cut

To meet the financial cost and repay the loan, the households suffering from cancer had to cut down their essential expenditures that in turn affect their quality of life and capacity to earn income. Quality of life is affected, if one has to sacrifice one or more of the essential components of quality of life: food, clothing, housing, education, health, elderly, social ceremonies etc. In general, the basic ingredients of human capital, the food, education and health had been seriously hit in the case of cancer victim families (Singh *et al*, 2013) [19]. The various expenditure cuts done by the respondents and his family are presented in Table 4. The scores were assigned by the sample respondents by using E-

Garret's ranking technique.

Among the expenditure cut, major cut was on food items with the mean score of 64.80 in the region. Ironically, a cancer victims has to be provided with extra nutritious diet but as cancer derails the whole economy of the household, it was observed that expenditure on essential food items like milk, ghee, fruits, vegetables, poultry and meat products etc. had to be cut in order to meet the expenses of treatment. Another brunt of expenditure cut had to be bore by children's education (Ranked II with mean score 61.58) and care of elderly (Ranked III with mean score 54.68). Expenditure on social functions and non-food items was also compromised and ranked IV and V with mean score 51.51 and 48.74 respectively. Unable to cope up with heavy expenditure incurred on cancer treatment some respondents also left treatment in between (Ranked VII with mean score 38.88) or shifted to cheaper treatment (Ranked VII with mean score 36.26).

Table 4: Distribution of respondents on the basis of expenditure cut due to cancer as perceived by major care taker

Sr. No.	Particulars	Bathinda (n ₁ =76)		Sri Muktsar Sahib (n ₂ =84)		South Western Region (N=160)	
		Mean Score	Rank	Mean Score	Rank	Mean Score	Rank
1	Education of children	63.18	II	60.55	II	64.80	II
2	Food	70.60	I	63.83	I	69.56	I
3	Care of elderly	63.14	III	60.14	III	61.58	III
4	Social Function	50.00	IV	48.95	IV	54.68	IV
5	Non Food items	45.68	V	46.95	V	51.51	V
6	Left treatment in between	40.22	VI	45.89	VI	48.74	VI
7	Shift to cheaper treatment	29.56	VII	33.47	VII	38.88	VII

E-Garrett's ranking

Source of loan

Indebtedness caused by any illness small or big was a common feature among almost all families. It forms a vicious cycle and for individuals, in particular, it takes away their hard earnings that could perhaps be spent on something more essential if a good public health care system had existed (Pandhi, 2012) [13]. The rural borrowers were dependent upon institutional sources for production and investment credit requirements. But for consumption credit needs, these people were forced to go to non-institutional sources for which they have to pay a very high rate of interest (Singh, 2017) [20]. There are mainly twomajor sources of loanmainly institutional and non-institutional agencies. Here institutional agencies consist of private commercial banks, public banks, Cooperative banks and RRBs and non-institutional sources

consisted of money lenders, friends, relative, *arhtiyas* or commission agents. In case of rural households, affected with the cancer, the incidence of borrowing, financial gifts from relatives/friends, and selling of assets are higher as compared to urban households. Lower income group families face distress financing and were even seeking treatment in public sector (Pramesh, 2014 and Engelgau, 2012) [15, 4].

Table 5 reveals that in the sample area 10.6 per cent of the cancer victims did not take loan. It was further reveals that 22.50 per cent of the cancer victims had taken loan from institutional sources while another 36.88 per cent of the respondents had taken loan from non-institutional sources. Thirty per cent of the respondents had taken loan from multiple sources including both institutional and non-institutional sources.

Table 5: Distribution of respondents on the basis of source of loan multiple response

Source of loan	Bathinda (n ₁ =76)			Sri Muktsar Sahib (n ₂ =84)			South Western Region (N=160)		
	Male (n=22)	Female (n=54)	Total (n=76)	Male (n=34)	Female (n=50)	Total (n=84)	Male (n=56)	Female (n=104)	Total (n=160)
Institutional	3 (13.64)	5 (9.26)	8 (10.53)	16 (47.06)	12 (24.00)	28 (33.33)	19 (33.93)	17 (16.35)	36 (22.50)
Non-institutional	8 (36.36)	20 (37.04)	28 (36.84)	6 (17.65)	25 (50.00)	31 (36.90)	14 (25.00)	45 (43.27)	59 (36.88)
Institutional + non-institutional	10 (45.45)	22 (40.74)	32 (42.11)	3 (8.82)	13 (26.00)	16 (19.05)	13 (23.21)	35 (33.65)	48 (30.00)
None	1 (4.55)	7 (12.96)	8 (10.53)	9 (26.47)	-	9 (10.71)	10 (17.86)	7 (6.73)	17 (10.63)

Note: Figures in the parentheses indicate percentage

Amount of debt

A capitalist system first creates chronic deprivation and ill health and then goes on to make quick bucks by providing the means of cure (Pandhi, 2012) [13]. The people had to raise loans through private money lenders in Punjab on a compounded rate of interest of 2 per cent per month. They either mortgage their land, home or jewellery to get these loans. They also raise loans from banks. The loans were being raised to buy land on lease, to pay the previous debt, to buy tractors, to solemnize marriages, to send their children's to foreign countries or to buy medicines.

The cancer affected families were under debt of around one to three lakh or more and some of them were worst affected.

Cancer does not make difference between have and have not and is knocking the doors after door, ruining the families, social system and economy of the peoples (Kumar and Kaur, 2014) [10].

The distribution of the respondents on the basis of amount of debt is presented in Table 6. The results revealed that in south western region more than one third of the respondents (36.3%) had debt less than 3 lakh. The respondents who owed debt between 3 to 6 lakh was 19.58 per cent, while more than Rs. 12 lakh of debt was owned by 20.3 respondents in the region. Treatment for cancer was important reason behind their indebtedness.

Table 6: Distribution of respondents on the basis of amount of debt

Amount of debt in lakhs	Bathinda (n ₁ =76)			Sri Muktsar Sahib (n ₂ =84)			South Western Region (N=160)		
	Male (n=21)	Female (n=47)	Total (n=68)	Male (n=25)	Female (n=50)	Total (n=75)	Male (n=46)	Female (n=97)	Total (n=143)
< 3	5 (23.80)	15 (31.91)	20 (29.41)	6 (24.00)	26 (52.00)	32 (42.66)	11 (23.91)	41 (42.27)	52 (36.36)
3-6	4 (19.04)	12 (25.53)	16 (23.52)	5 (20.00)	7 (14.00)	12 (16.00)	9 (19.57)	19 (19.59)	28 (19.58)
6-9	1 (0.47)	6 (12.76)	7 (10.29)	4 (16.00)	6 (12.00)	10 (13.33)	5 (10.87)	12 (12.37)	17 (11.89)
9-12	2 (9.52)	5 (10.63)	7 (10.29)	7 (28.00)	3 (6.00)	10 (13.33)	9 (19.57)	8 (8.25)	17 (11.89)
> 12	9 (42.86)	9 (19.14)	18 (26.47)	3 (12.00)	8 (16.00)	11 (14.66)	12 (26.09)	17 (17.53)	29 (20.28)

Note: Figures in the parentheses indicate percentage

Financial loss due to cancer

The financial coping strategies adopted by the respondent's family were predominately selling of land or giving land on mortgage, livestock, selling of ornaments or on lease, selling of house, their own savings and their jobs. The treatment expenditures on cancer not only affected the patient, but also the welfare and education of the generations of the patient's family (Zimmerman *et al*, 2012) [12].

Table 7 highlights that 47.50 per cent of the respondent's family sold their livestock's to get the money for the treatment of the cancer patient in the family. The emotional cost of selling an animal to whom one nurtures from like a family member is enormous. Ornaments were sold by 41.25 per cent of the respondents. One fourth (27.50%) of the family members mort gaged ornaments and exhausted savings (24.4%) to meet the expenses.

Table 7: Distribution of respondents on the basis of financial loss due to cancer (Multiple responses)

Economic loss due to cancer	Bathinda (n ₁ =76)			Sri Muktsar Sahib (n ₂ =84)			South Western Region (N=160)		
	Male (n=22)	Female (n=54)	Total (n=76)	Male (n=34)	Female (n=50)	Total (n=84)	Male (n=56)	Female (n=104)	Total (n=160)
Sale of Land	3 (13.64)	9 (16.67)	12 (15.78)	7 (31.82)	6 (12.00)	13 (15.47)	10 (17.85)	15 (14.42)	25 (15.62)
Mortgage of Land	4 (18.18)	4 (7.41)	8 (10.53)	3 (8.82)	4 (8.00)	7 (8.33)	7 (12.50)	8 (4.69)	15 (9.37)
Sale of Livestock	12 (54.55)	28 (51.85)	40 (52.63)	17 (50.00)	19 (38.00)	36 (42.86)	29 (51.79)	47 (45.19)	76 (47.50)
Sale of Ornaments	10 (45.45)	23 (42.59)	33 (43.42)	10 (29.41)	23 (46.00)	33 (39.28)	20 (35.71)	46 (44.23)	66 (41.25)
Mortgage of Ornaments	6 (27.27)	20 (37.04)	26 (34.21)	3(8.82)	15 (30.00)	18 (21.42)	9 (16.07)	35 (33.65)	44 (27.50)
Sale of house	-	3 (5.56)	3 (3.95)	3 (8.82)	-	3 (3.57)	3 (5.36)	3 (2.88)	6 (3.75)
Left job	2 (9.09)	5 (9.26)	7 (9.21)	7 (20.59)	6 (12)	13 (15.48)	9 (16.07)	11 (10.58)	20 (12.50)
Exhausted Savings	8 (36.36)	14 (25.93)	22 (28.95)	7 (20.59)	10 (20)	17 (20.24)	15 (26.79)	24 (23.08)	39 (24.38)
Sale of Land	3 (13.64)	9 (16.67)	12 (15.78)	7 (31.82)	6 (12.00)	13 (15.47)	10 (17.85)	15 (14.42)	25 (15.62)
Mortgage of Land	4 (18.18)	4 (7.41)	8 (10.53)	3 (8.82)	4 (8.00)	7 (8.33)	7 (12.50)	8 (4.69)	15 (9.37)

Note: Figures in the parentheses indicate percentage

Another one seventh (12.5%) of the respondents' family members left their job in between, as there is no provision of leaves or security in the era of contract utilization. Three female victims from Bathinda and three male from Muktsar district had to sold some part of their house for the treatment.

Psychological Consequences

It was quite usual for many cancer patients and their family members to experience the initial shock of diagnosis and subsequently go into a state of depression (Bose 1992) [2]. Some people with cancer may experience depression before, during, or after cancer treatment. Depression is a type of mood disorder. Depression may make it harder to Cope up with cancer treatment. It may also reduce your ability to make choices about your care. As a result, identifying and treating

depression were important parts of cancer treatment. The symptoms of depression may appear right after diagnosis or anytime during or after treatment. These symptoms range from mild to severe. Severe depression interferes with a person's relationships and day-to-day life (Gurm *et al*, 2008, Jang *et al*, 2012) [6, 7].

Patients who underwent major surgery and disfigurement thereafter, or disfigurement even without surgery suffer from body-image problems. The scars and physical disfigurements serve as reminders of the social ostracization they may be facing or forced because of it (Mothes *et al*, 2005) [12]. Study revealed that significant majority (95.0%) lost hair and 93.7 per cent had drastic loss of body weight, because of the chemotherapies treatment. Eighty per cent had got blood loss because of radiations and strong medication of this disease.

Forty per cent of the respondents black pigmentation on their body. Cancer victim revealed that they had seen change in their physique as a result of disfigured face (8.1%), speech loss (2.5%) and catheter (0.6%). Female respondents only seen change in their physique as a result of breast removal (9.3%).

Study further attempted to investigate psychological consequences victims had underwent and is presented in Table 8. Study revealed that two thirds of the victims were continuously in the state of fear (68.3%) as they were certain about the eventual mortality due to the disease in spite of their treatment. Those who were recuperates were fearful of its relapse. After effects of treatment were too horrendous which made respondents to excessively fearful and anxious. Another, 39.3 per cent of the cancer victims disclosed that they had isolated themselves (sometimes by their family members). Cancer had severely restricted the mobility of the

victim and they were mostly confined to their room and bed which made them feel isolated. Half of the (42.5%) respondents felt that due to cancer treatment identity or image of the body bothered them a lot. Due changed body either because of hair loss or removal of breast they had become too conscious about their body image. One fifth (20.6%) of the respondents were found depressed due to cancer as was revealed by them and their major caretakers. Some respondents has stopped sharing their thoughts with their family members and friends. They felt depressed while thinking of the economic crisis their family was facing due to their treatment. One fourth (20.6%) cancer patients who were segregated physically and socially felt discriminated. They were made to live separately within their house for the fear of contamination and items of their daily use like clothing, utensils, food etc. were separated, contact with acquaintances was also made minimal.

Table 8: Distribution of the respondents on the basis of psychological consequences as perceived by them and their caretakers (Multiple responses)

Particulars	Bathinda (n ₁ =76)			Sri Muktsar Sahib (n ₂ =84)			South Western Region (N=160)		
	Male (n=22)	Female (n=54)	Total (n=76)	Male (n=34)	Female (n=50)	Total (n=84)	Male (n=56)	Female (n=104)	Total (n=160)
Feel Isolated	3 (13.63)	20 (37.03)	23 (30.26)	5 (14.70)	35 (70.00)	40 (47.61)	8 (14.28)	55 (52.88)	63 (39.37)
Anxiety	16 (72.72)	30 (55.55)	46 (60.52)	20 (58.82)	40 (80.00)	60 (71.42)	36 (64.28)	70 (67.30)	106 (66.25)
Fear	5 (22.72)	45 (83.33)	50 (65.78)	17 (50.00)	42 (84.00)	59 (70.23)	22 (39.28)	87 (83.65)	109 (68.12)
Feel discriminated	8 (30.36)	12 (22.22)	20 (26.31)	1 (2.94)	12 (24.00)	13 (15.47)	9 (16.07)	24 (23.07)	33 (20.62)
Depression	3 (13.64)	14 (25.93)	17 (22.37)	4 (11.76)	12 (24)	16 (19.05)	7 (12.50)	26 (25.00)	33 (20.63)
Stigmatized identity	9 (40.90)	19 (35.18)	28 (36.84)	11 (32.35)	29 (58.00)	40 (47.61)	20 (35.71)	48 (46.15)	68 (42.50)

Note: Figures in the parentheses indicate percentage

Association between anxiety level and socio-economic aspects of cancer patients

Table 9 highlights the distribution of respondents on the basis of association between anxiety level and socio-economic aspects of cancer patients. Anxiety level was measured by scoring the psychological parameters like isolation, anxiety, fear, discrimination and depression and their association was worked out between anxiety level and in socio demographic

aspects viz gender, age, marital status, income and family size. With the cube root method the anxiety level of cancer patients were categorized into low, medium and high.

The anxiety level is highly significant with the socio-economic parameters with the chi-square value 8.197 for gender, 38.39 for age, 7.77 for marital status, 18.09 for income and 31.37 for family size.

Table 9: Distribution of respondents on the basis of association between anxiety level and socio-economic aspects of cancer patients

Parameters	Value of coefficient	P-Value
Gender	8.197	0.05
Age	38.39	0.01
Marital Status	7.77	0.05
Income	18.09	0.01
Family Size	31.37	0.01

Factors affecting the severity of consequences of the cancer patients

Severity index (Table 10) has been developed in order to quantify the level of consequences. All qualitative statements with respect to socio-economic consequences were quantified by assigning specific code. Regression analysis was carried

out to document the various factors affecting the severity of consequences. Anxiety level, marital conflicts, debt burden and economic loss had significantly contributed towards the severity of consequences.

Hence, the consequences could be more severe if the level of these factors increased.

Table 10: Factors affecting the severity of consequences of the cancer patients

Factor (Constant)	Coefficients			
	Regression Coefficient	Std. Error	t-value	Sig.
	0.932	2.106	0.443	0.659
Beliefs	-0.038	0.076	-0.498	0.620
Anxiety level	1.073	0.038	27.869	0.000*
Stage of cancer	-0.067	0.196	-0.34	0.734
Marital conflicts	1.305	0.093	14.039	0.000*
Life style	0.103	0.083	1.237	0.218
Environmental factor	0.127	0.127	0.995	0.322

Debt burden	0.955	0.132	7.228	0.000*
Level of safety measures	0.093	0.078	1.189	0.237
Hygienic drinking water	-0.013	0.051	-0.265	0.791
Economic loss	1.039	0.034	30.937	0.000*

Note: Multiple Linear Regression model

*Significant at one percent

Conclusion

There is no doubt that Punjab is considered as a developed state but it seems that to sustain the same level of development in the years to come will be difficult and more challenging. Punjab had made big studies on socio-economic front in general and agricultural development front in particular after green revolution. At the same time this is equally true that Punjab is now paying a heavy cost in the form of ecological degradation and sustainability of environment and human health is in danger. In the late nineteenth and early twentieth century, it was communicable disease which were taking a toll on life but in present era the danger of non-communicable disease looms large. It must be admitted that the contemporary Punjab is passing through a more risky phase than that of earlier times. The risks which we encounter today, derive from science and technology and there is no going back even, yet political intervention, civil society organization's role and awareness and consciousness of masses have much to do in order to rein the otherwise volatile socio-economic milieu.

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