

**ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCE
SCHOOL OF NURSING AND MIDWIFERY**

**RESILIENCE AND ITS PREDICTORS AMONG PARENTS OF
CHILDREN WITH CANCER AT JIMMA MEDICAL CENTER**

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LIST OF ACRONYMS AND ABBREVIATION

DASS	Depression, Anxiety and Stress Scale
ETB	Ethiopian Birr
GLOBOCAN	Global Burden of Cancer
HCP	Health care provider
HH	House Hold
HSPN	Henoch Schonlein Purpua Nephritis
JMC	Jimma Medical Center
QOL	Quality of Life
SD	Standard Deviation
TASH	Tikur Anbessa Specialized Hospital

Table of contents

APROVAL SHEET	ii
ACKNOWLEDGMENT.....	v
LIST OF TABLES	ix
LIST OF FIGURES	x
ABSTRACT	xi
1. INTRODUCTION	1
1.1. Background	1
1.2. Statement of the Problem	3
2. LITERATURE REVIEW	5
2.1. Parents' Resilience	5
2.2. Predictors of parents' resilience	6
2.2.1. Socio demographic predictors	6
2.2.2. Children health related characteristics.....	8
2.2.3. Psychological predictors	9
2.2.4. Behavioral related predictors	10
2.2.5. Service-related predictors.....	10
2.3. Conceptual framework	12
2.4. Justification of the study.....	13
2.5. Significant of the study	14
3. OBJECTIVE	15
3.1. General Objective	15
3.2. Specific Objectives	15
4. METHOD AND MATERIALS	16
4.1. Study area	16
4.2. Study period.....	16
4.3. Study Design.....	16
4.4. Population.....	16
4.4.1. Source population.....	16
4.4.2. Study population.....	16
4.5. Eligibility Criteria	17

4.5.1. Inclusion criteria.....	17
4.5.2. Exclusion criteria	17
4.6. Sample size determination and sampling technique	17
4.7. Variables.....	18
4.7.1. Dependent Variable	18
4.7.2. Independent Variables.....	18
4.8. Operational Definition	18
4.9. Data collection tools and procedures	19
4.9.1. Development of data collection tool	19
4.9.2. Data collectors	20
4.9.3. Data collection procedures	20
4.10. Data quality control	20
4.11. Data processing and analysis	21
4.12. Ethical consideration.....	22
4.13. Dissemination of the results	22
5. RESULT.....	23
6. DISCUSSION	29
7. CONCLUSION AND RECOMMENDATION	32
7.1 Conclusion.....	32
7.2 Recommendations	32
8. REFERENCE.....	34
ANNEX.....	39
Annex 1: English Version data collection tool	39
Annex 2: Amharic Version Questioner.....	47
Annex 3: Waraqaa Deebii.....	54

LIST OF TABLES

Table 1: Socio-demographic characteristics of parent’s children with cancer at Jimma medical center, Oromia, Ethiopia, February 25, 2012 to April 25, 2020 (n=122)	23
Table 2:Child health related, parents behavioral and service-related characteristics at Jimma medical center, Oromia, Ethiopia, February 25,2020 to April 25,2020 (n=122).	25
Table 3: Multiple linear regression analysis predicting parents’ resilience at JMC, Oromia, February, 25, 2020 to April 25,2020 (n=122).....	28

LIST OF FIGURES

Figure 1: Conceptual framework of factors associated with resilience among parents of children with cancer at JMC (adapted after reviewing different kinds literatures(29,32,46,50,54,59).	12
Figure 2: Psychological predictors of parent’s children with cancer at Jimma medical center, Oromia, Ethiopia, February 25, 2012 to April 25, 2020 (n=122).....	26

ABSTRACT

Background: Resilience is an ability to overcome adversities in response to a potentially traumatic event. Resilience relieves parents' discomfort; it also helps to build personal capacity while they face in a stressful situation like children with cancer. Despite having this importance, the magnitude and its predictors of resilience among parents of children with cancer were unknown at Jimma medical center. **Objective:** To assess the magnitude of resilience and its predictors among the Parents of Children with Cancer at Jimma medical center, 2020.

Method: An institutional-based cross-sectional design was employed on 126 parents of children with cancer at Jimma medical center. All study population who attend the hospital from February 25-April 25, 2020 and fulfills the inclusion criteria were included in the study. Data were collected by face-to-face interviews using a pretested structured questionnaire. Data were entered into Epi data version 4.6.0.2 and analyzed by SPSS version 25. Descriptive analysis was used to describe the study variables, Furthermore, linear regression analysis was calculated to assess predictors of resilience.

Result: A total of 126 parents of children with cancer were interviewed yielding response rate of 96.8%. Little more than half (54.1%) of the respondents were mothers. The level of resilience among parents' children with cancer were a mean scored 51.41 ± 12.02 . In this study, factors associated with resilience were; receiving support from friends ($\beta=5.67$, 95%CI=1.58, 9.77; and receiving health information from health care professionals ($\beta=6.37$; 95%CI= (1.75, 11.00), and parents depression ($\beta= -0.827$, 95%CI= (-1.619,-0.034).

Conclusion. The magnitude of resilience among parents of children with cancer was low. Support from friends and receiving health information from health care professionals were positively associated with resilience. Whereas, parents' depression was negatively associated with resilience. Therefore, we recommended Jimma medical center health care providers including psychologists, Ministry of health and researchers should understand different factors and should give concern, to identify vulnerable parents and preparing and providing educational and psychological supports to improve parents' health.

Key words: Resilience, Pediatric Cancer, Jimma medical center, Parents.

1. INTRODUCTION

1.1. Background

Childhood cancer is one of life-threatening illnesses and a leading cause of child mortality and mortality in low and middle-income countries (1). As stated by a world health organization every year, 300,000 new cases are diagnosed with cancer in children aged between 0-19 years (2).

The problem from childhood cancer extends to Africa, one of the developing continents in the world—recently the incidence of childhood cancer has risen dramatically. For example, the GLOBOCAN estimated the incidence rate of East African countries like Tanzania at 134 new cases per million and the Extrapolation from clinical documents at Tikur Anbessa Specialized Hospital (TASH) Radiotherapy Centre estimates that there were 120,500 new cancer cases/year, even though GLOBOCAN estimates are much less than (51,000 per year). Based on extrapolating estimates of new cases of pediatric cancer in Ethiopia, with the incidence rate of 6,000 new cancer cases per million (3).

The most common childhood cancers are Leukemia, brain cancer, lymphomas and solid tumors like neuroblastoma and Wilm's tumor respectively (4). Each year 100,000 children less than fifteen years of age lose their life by cancer and the majority of the death around 90% occurs in poor countries. Lack of specialized human power in the area of cancer, accurate diagnosis and treatment and expensive cost of the drug and diagnostic investigation causes decreased survival rates in low and middle-income countries (5).

However, parents are primarily responsible for caring, taking to medical service and also covering all costs related to childhood cancer. Recently many childhood cancers have become treatable resulted increasing the 5-year survival rate because of increased public awareness and advancement in medical diagnostic and treatment options. So, parents of children with cancer should have a positive adaptation to take care of their health that helps to provide support for their ill children with cancer (6).

Coping is anything people do to adjust to the challenges and demands of stress, or any adjustments made to reduce the negative impact of stress (7). A key factor behind effective coping with parents' children with cancer-related problems is resilience. Resilience is an ability to overcome difficulties

and lack of psychological distress or the adoption of a positive attitude in response to a potentially traumatic event. It is commonly used to refer to parents' ability to understand unfavorable psychological conflict when confronted stressful conditions. It includes adaptability and the capability to recover from traumatic events and stressful circumstances (8).

Resilience allows parents to achieve a balance of emotions. Parents need to have resilience and experience positive adaptive skills to successfully manage their children's cancer and factors related difficulties (9). As a personal characteristic, resilience helps to alleviate parents' discomfort, it also helps to build personal capacity while they are faced in stressful situations like children with cancer (10).

So, understanding the contribution of resilience at individual and parental health, determining its level and its associated factors can help improve individuals' and families' to build capacity for positive adaptation to different health problems(11).

1.2. Statement of the Problem

The success of parents to adapt to the crisis from childhood cancer could enable the parents to be physically, mentally and psychologically capable of adjusting different factors when they faced stressful conditions and living today and hoping tomorrow in an optimistic feeling. Improving resilience among parents of children with cancer helps to promote the psychological wellbeing of the family, improves quality of life and it helps to reduce from being exposed to different health related problems (12). As parents learn to adapt and cope with their child's cancer illness, they could demonstrate decreased distress throughout the illness and its treatment (13).

Studies showed that the level of resilience among parents of children with cancer is low. Parent's failure to adapt to the illness of childhood cancer increases the risk of health problems such as physical and mental health problems. Hence, the existing evidence shows that low resilience has an association with increased of depression and anxiety among the parents of children with cancer through psychological and clinical assessments. Moreover, Parents maybe even more at-risk for post-traumatic stress syndrome (14,15).

Surprisingly, research has shown that parents of children with cancer report lower Quality of Life (QoL) than their child with cancer(16). This suggests parents of children with cancer may be more in danger of developing negative psychosocial outcomes. Even though parents' children with cancer are a major stressor factor for parents, many of them can tend to adjust to the situational stressor over time and some aspect of factors could be improved, Furthermore, resilience is not a fixed character trait; it can be learned and improved (17).

Parents are primarily responsible to support their families economically, but when they have children with cancer illness, they will face the challenge to do their routine work based on their schedule; as they spent much time taking care of their child in the hospital or their home. To care for a child with cancer, parental roles might be altered and family functioning may need to change for shorter or longer periods and also, parents' work priorities may change and be affected. Consequently, households' incomes may be reduced, and this may affect families' welfare negatively.

In general, parents' especially mothers of children with cancer were more susceptible for releasing their jobs to stay with their child during therapy. They are primarily responsible for their child whether in admitted and ambulatory care. Another studies also showed that 15% had at least one parent who resigned from their job for at least 1 year and between 40% and 63% of families reported lost their work(18).

In summary, parents of children with cancer having low resilience might be exposed for different physical and mental health problems issues like, they could be exposed to psychological (anxiety, depression, stress), physical (decrease quality of life), economical (loss of employment) problems.

Findings from different studies related to resilience in different countries showed that most related studies were conducted on parents of children with psychiatric illnesses and only mothers were the study participants. Besides, there is limited published research about resilience among the parents children with cancer. In addition to this, there is a scarcity of evidence on the resilience of parents of children with cancer in Ethiopia in general and in the study area in particular. To fulfill this gap, this study was conducted to assess parents' resilience and its predictors among the parents of children with cancer at Jimma medical center, Ethiopia.

2. LITERATURE REVIEW

2.1. Parents' Resilience

Having cancer is associated with positive and negative life changes on the patient as well as their families. Improving resilience should be a critical component of cancer care. Many studies have examined the level of resilience in both developed and developing countries. The study conducted in Iran showed that the total mean and standard deviation score of parents was 66.83 and 14.28, respectively. Furthermore, this study showed that there is a difference in mean resilience between mothers and fathers' children with cancer. The level of resilience among parents of children with cancer with a mean and standard deviation score of 70.40 ± 12.86 for fathers and 64.87 ± 14.61 for mothers (19). Another related study in China showed that parents' children with cancer's mean (SD) of resilience score were 54.86 ± 12.88 (8).

A study conducted in Iran also on parents' children with insulin-dependent children and adolescents showed that the mean and standard deviation of resilience were 65.33 and 23.81, respectively(20). In addition to that, finding on the parents of children with autism also showed that the mean and standard deviation score of parents' resilience was 55.71 ± 11.82 (21). Moreover, a study conducted on resilience among the mothers of children with cancer stated a resilience mean score of 61.51 ± 13.70 (9).

Based on this finding, there was a statistically significant difference in mean resilience between mothers and fathers' children with cancer ($p < 0.05$). This implies that mothers are low resilience and suffer more than fathers because of children with cancer. The finding is similar with previous research findings done in Iran (22).

Most of the studies showed that proper handling of difficulties related to children's cancer helps to encourage parents to be resilient through time(23). There is a difference in the level of resilience between mothers and fathers of children with cancer. The study conducted in Jordan reported that the mothers' children with cancer had low resilience compared to the fathers' children with cancer (24). Another study conducted in India on parents of children with intellectual disability showed that the mean (SD) resilience was 65 and 10.70 respectively (25).

Additional study conducted in China on parents' children with Henoch Schonlein Purpura (HSP) Nephritis showed that the mean and standard deviation score of parents' resilience were 56.37 and 11.62, respectively. Studies showed that parents of children with chronic diseases like cancer had low resilience than parents of adults with chronic diseases. Parents of typical adults with HSP diseases have relatively good resilience with a mean and standard deviation correspondingly 71.04 ± 11.37 (26). A facility-based study conducted in Turkey pediatric rehabilitation showed that parents' resilience of a mean and standard deviation for non-ambulatory children was 37.22 ± 13.91 and for ambulatory children 30.11 ± 13.56 , respectively (27).

2.2. Predictors of parents' resilience

2.2.1. Socio demographic predictors

Being diagnosed with cancer and undergoing its treatment are associated with substantial distress that can cause long-lasting negative psychological outcomes. Studies showed that resilience is not only fully dependent on the external environment, but inherent factors can contribute to individual differences to be resilient more than 50%. Even though males and females are similar to each other respecting resilience, they differ from each other respecting the inheritable factor that they have to affect resilience (28).

Other findings indicated that parental relation could be one of the predictors of resilience. Studies have shown that the mean score of fathers' resilience of parents' children with cancer was significantly greater than mothers. Similarly, parental relation showed that on parents of children with cancer and autism fathers were more resilient than mothers. Most parents are required to look for and try early intervention strategies for the sake of their child's future (29,30).

Costs associated with having a child with cancer are not only limited to the cost of interventions. But Like any other form of ill health, parents of a child with cancer often face greater expenses of time and money. Parents' children with a chronic illness like autism additional cost is also associated with supplementary activities for children with debilities at any time following the treatment. Health insurance or other charitable groups may sometimes cover the cost of medical tests used in the diagnostic process and the cost of prescription medication, but it could be varied

from place to place. A good economic status is usually expected to reduce parents' level of distress (31).

However, parents being difficult to use their economy in time effectively would compromise their level of resilience because of children with cancer. A study conducted in Canada showed education had an effect on the parent's resilience, educated fathers reported having a better level of resilience than uneducated ones (32).

Different studies showed that fathers' employment status as a significant factor for parents' resilience—for example, government employed fathers who were working office work had a better level of resilience than others. Manly parents' employment would be determined by its educational level, those who were educational level high would expect to have a better level of work position and better level of financial status which was identified to be a significant factor for parents 'resilience in different studies (33,34). Furthermore, parents of children with cancer could receive support from different sources, and those getting professional support from work place had a better level of resilience than others (35).

The study in China showed that mothers' children with cancer have a higher rate of being married and unemployment than fathers. The study conducted in Taiwan showed that Unemployment can negatively affect parents' financial status and undermine their level of resilience. 35% of mothers had been employed, most of them left their work after their child was diagnosed with cancer (36). A study conducted at the university of California showed that parents' educational and income level significantly predicted a variance of resilience around 11% (37).

Parents' children with cancer have a feeling of social support. It enhances parents' sense of self-confidence and can reduce caregivers 'emotional burden. Though, there are cultural implications of support seeking within different cultural groups. The sense of social support varies within different cultures. In different societies, people may perceive and access social support in different ways (38).

Concerning studies showed that the type of children's diseases will determine the way to get social support that a person receives when he or she is ill or cares for a patient. For example, research has shown that the stigma which is associated with cancer affects the level to which one may

receive social support. This is particularly true in subcultures in the Middle East and Asia and less developed countries(39).

2.2.2. Children health related characteristics

Many studies indicated that children's gender was another factor of parents' resilience so that the parents whose cancer-suffering children are female were had better level of resilience than male children's parents. A study conducted on India showed that there was significant association between children's gender and parents resilience children's gender. Previous studies showed that there were an association between children gender with mothers anxiety which implies that children gender has an a contribution for parents resilience(40).

A study conducted in Asian countries on parents' children with cancer spent most of their time with their male children, rather than female children. Moreover, parents who give much time to stay with their male child have better knowledge about their children's illnesses and deliver them with greater care and support. These factors may contribute to stress that hinder the level of resilience among parents whose cancer suffering children were male (41,42).

Studies showed that the type of child malignancy could have a significant association with parents' resilience. The study conducted in Norway indicated that parents of children with leukemia had a significantly lower level of resilience than other types of cancer (34). However, a study conducted in Iran showed there was no significant association between parents' resilience and types of children's malignancy (19). The study conducted in China on parents of children with embryonal tumors or CNS tumors had experienced a high level of depression and anxiety which contributes to having a low level of resilience (43).

The relapsing status could have an association with parents' resilience on parents' children with cancer. Concerning this, a study conducted in the USA found that parents having children with relapsed status had more post traumatic syndrome than others. This implies that parents who were taking care of children with relapsed children with cancer could contribute to have low parental resilience. In addition, the number of children at the house hold level could have a contribution on parental resilience (23).

2.2.3. Psychological predictors

Psychological resilience is the ability to emotionally or mentally manage with a crisis or to come back to pre-crisis status quickly. Studies concerning psychological predictors in Sweden and Iceland showed that low resilience was significantly associated with anxiety, depression and stress(14,44).

Resilience is real when the person uses his or her skills in helping personal goods and protecting his or her self from the potential undesirable effects of stressors. In simpler terms, psychological resilience occurs in an individual who develops psychological and behavioral skills that allow them to remain quiet during crises/disorder and to swap from the occasion without ongoing negative consequences(45).

Parents of children with cancer who had depression would have a changed cellular and humeral susceptibility that causes the chance of developing infection, so this indicates that depression affects the parent's physical health(46). A study conducted in Iran on parents' children with cancer showed the mean and standard deviation of anxiety 9.63 ± 3.69 and 8.66 ± 4.59 depression among parents of children with cancer(47).

Another study which were conducted Jordan on parents' children with cancer the mean (SD) of depression and anxiety were 10.3 (3.1) and 11.7 (2.7). The study conducted in Greek showed that there was a high level of anxiety and depression among parents of children with cancer than other chronic diseases. This implies that parents of children with cancer had low resilience than other chronic diseases(48,49). The study which was conducted in China showed that there was a significant association between resilience and depression(43).

In the study of Iran parents' children with cancer generally showed that seventy percent of parents had anxiety. Although there is no evidence regarding the prevalence of anxiety and its contribution on parents' children with cancer in Ethiopia. However nowadays and experiencing from childhood cancer is becoming a crisis for fathers as traumatic as for mothers because parents' tasks are shifting towards both. So, it is important to give attention to the father's psychological needs too. The findings indicated that fathers' caring responsibility mainly was on emotional and mothers were more engaged in physical care activities (50).

2.2.4. Behavioral related predictors

A study which was conducted in Mexico indicated that parents' participation in different shared recreational activities helped to develop a better positive adaptation. Parents' having enjoyable time can produce attachments, happiness, learning, humor, and the pleasure of shared experiences (50). Another study in American shown that parents spending more time with television, video games, and the computer have a better insight of how to handle when they faced difficulties in their life (51).

In our society, religion is one of the most important psychological support which has the potential to give meaning to life throughout people's whole life and save them from feelings of being irrationality. Religion can be a huge support especially in difficult and crisis situations (52). The findings in Tehran showed that there is a significant negative relationship between spirituality and depression on parents' children with cancer, which implies that religious people will have a better level of resilience than others (49).

A common belief system of optimism and success enables parents to make sense of a crisis or change when confronted with problems, many parents foster and optimistic attitude with spirituality, seeking purpose in faith. Many fundamental parents' beliefs are found in religion (51). Family spirituality studies indicate that religion is a prominent factor in the family, with 95% of parents reporting a religious affiliation(53).

2.2.5. Service-related predictors

Most of the parent's children with cancer are referred to the hospital suddenly (unexpected hospitalization) and they start to be frustrated because of the unfamiliar hospital environment, difficulty in communicating with medical staff and also other parents, and lack of medical knowledge about their child's case could also contribute to increased uncertainty about the diseases state (54).

Treatment duration could be one of the predictors for parents' low resilience. The treatment type recommended and its side effects on the child might require long time hospitalization and repeated appointment, which could be a predictor of parents' resilience. Parents reported they suffered when

they were separated for a long time in the hospital and did not communicate to the family when demands increased during the child's illness (55).

The type of cancer treatment could have an association with parents' resilience, for example, findings in Finland shown that parents of children undergoing surgery often become more frustrated and dependent and the family members give more attention and are more concerned about what is going on during surgery. Of even more concern is the unfamiliar environment and the lack of inadequate information about the treatment from health care providers. These feelings may occasion significant anxiety and lack of trust in the hospital and lead the parents to have low resilience (56).

The study in Switzerland showed that poor parental resilience, the medical staff especially health care providers can most directly have an impact on improving psychological factors that help to decrease parental distress which helps parents to have a better adaptation to stressful situation (57).

Duration of pediatric illness could have an impact on the marital relationship. On the other hand, studies shown that depending on the type of pediatric illness marital relationship would be affected. For example, parents' children with cancer's marital relationship satisfaction decreased during the first year after the child was diagnosed with cancer. Thereafter, marital strength increased and then four years following diagnosis marital strength decreased (58).

In summary, the reviewed kinds of literature reported that socio-demographic variables like financial status, parents' gender, educational status, fathers' employment status, place of residence, and social support. Similarly, resilience has associated with parents' educational level and income. In addition to socio-demographic predictors, children health related characteristics, psychological predictors like, depression, anxiety, stress and behavioral and service-related predictors could have an effect on parents to ability to have positive adaptation to unfavorable condition with resilience.

2.3. Conceptual framework

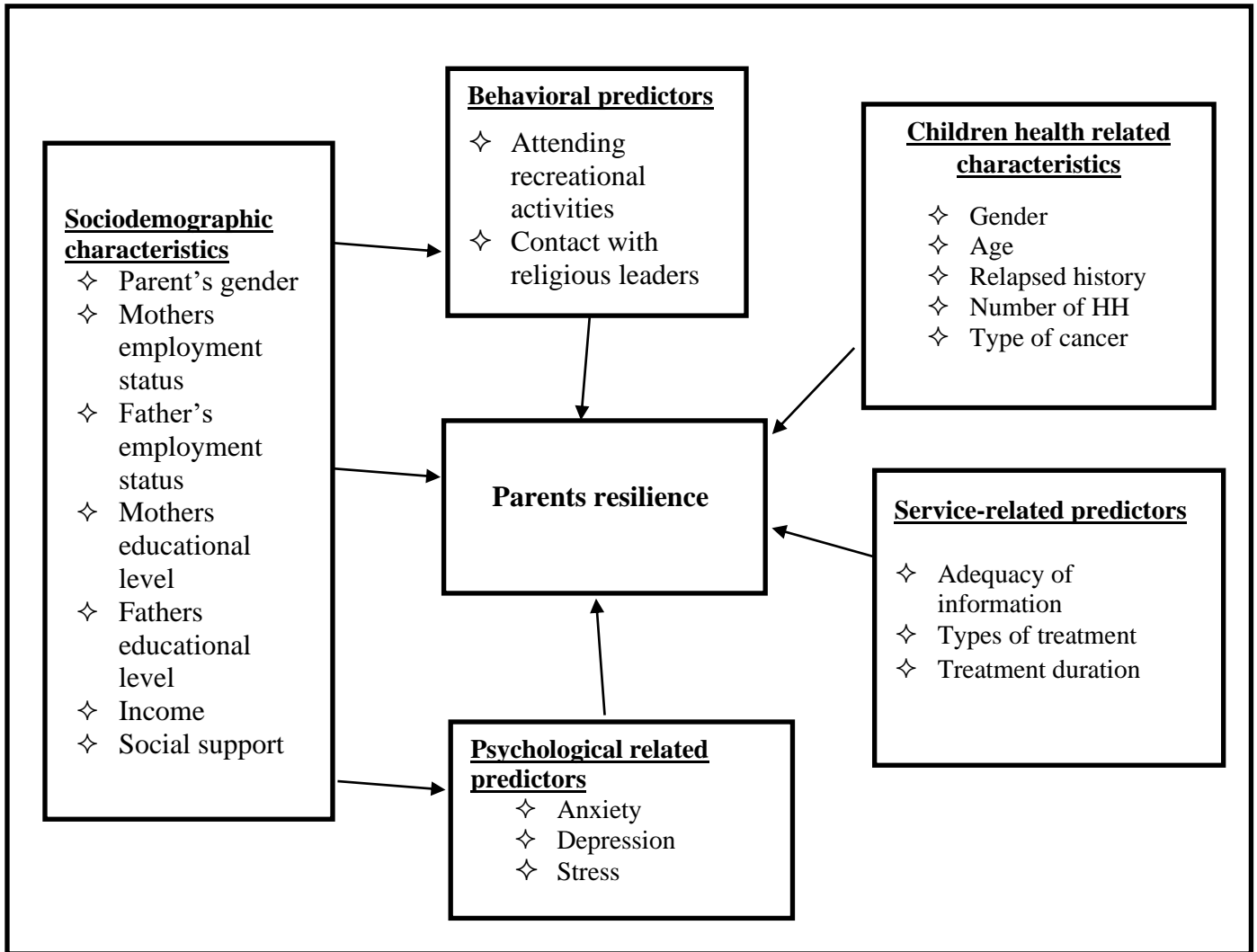


Figure 1: Conceptual framework of factors associated with resilience among parents of children with cancer at JMC (adapted after reviewing different kinds literatures(29,32,46,50,54,59)).

2.4. Justification of the study

Recently the incidence of childhood cancer has increased dramatically. The government is giving more attention to the area of non-communicable diseases like cancer following the emergence of educated professionals, availability of better diagnostic technologies, and also increasing societal awareness in the area of cancer. Due to the fact that resilient parents they knew challenges happen as part of life and they try to resolve problems and have more positive feedback. On the contrary, non-resilient parents of children with cancer, they might be exposed to different physical and mental health problems like, psychological (anxiety, depression, stress), physical (decrease quality of life), economical (loss of employment) problems.

Despite the tremendous amount of contribution of parents' regaining process for their children with cancer, health care providers fail to recognize and manage the parental level of resilience and its predictors.

Implementation of individualized and focused intervention is needed; therefore, identifying the level of resilience and precipitating and reliving factors that exists within the parents was important and the initial task screening these parents for the level of resilience was very important as it is linked with different health outcomes. So far there is no research conducted to assess parents' resilience and its predictors in JMC. Therefore, this study was conducted to fulfill the gap by assessing the resilience level and associated predictors of resilience of parents' child with cancer.

2.5. Significant of the study

The rationale of studying the magnitude of resilience status and the contributing factors of parents' children with cancer have been practical vital value for parents, health providers, researchers, and policy-makers. This study would help both society and individuals at large, to assess parents' resilience and contributing factors to children with cancer. The study has an input to policymakers, program managers, health professionals to estimate parents' resilience status, to decide based on evidence about which group of parents are vulnerable to low resilience and its factors, to support the planning of systems for giving attention to parental health.

The findings of the present study could help health-care providers to easily identify potentially vulnerable parents and support them with greater psychological and educational help to improve their health. The result of this study could have positive contributions through obtaining relevant information on predictors of parents' children with cancer associated with resilience. Finally, this paper could also be a baseline for future researchers.

3. OBJECTIVE

3.1. General Objective

- ✧ To assess the magnitude of resilience and its predictors among the parents of children with cancer at JMC 2020.

3.2. Specific Objectives

- ✧ To determine the magnitude of resilience among parents of children with cancer at JMC 2020.
- ✧ To identify predictors associated with resilience among parents of children with cancer at JMC 2020.

4. METHOD AND MATERIALS

4.1. Study area

The study was conducted at Jimma medical center, which is found in Jimma town, Oromia region. Jimma town is located in the southwest of Ethiopia, 352 Km away from Addis Ababa. This hospital is one of the oldest public hospitals in Ethiopia. The Hospital is the only teaching and referral hospital in the southwestern part of the country, providing services for approximately 15,000 inpatient, 160,000 outpatient attendants, 11,000 emergency cases and 4500 deliveries in a year coming to the hospital from the catchment population of about 1.5 million people.

Currently provides different services to the people living in Jimma town and around there. Also, this center is accessible to the majority of the community. Among the main inpatient/outpatient services; the Pediatric Hematology/Oncology ward is the one that provides services to pediatric cancer patients. The pediatric cancer unit was inaugurated in May 2016 through a partnership between Jimma University and the USA based Aslan project. In this ward, there are 22 beds with a total of 1 oncologist, 2 residents and 15 nurses and it serves more than 300 new pediatric cancer patients per year(60).

4.2. Study period

The study was conducted from February 25, 2020 to April 25, 2020.

4.3. Study Design

A facility based cross-sectional study design was employed.

4.4. Population

4.4.1. Source population

The source population was all parents of children with cancer who were attended at JMC oncology unit.

4.4.2. Study population

Parents of children with cancer who was attended at JMC oncology unit in the study period and fulfills the inclusion criteria.

4.5. Eligibility Criteria

4.5.1. Inclusion criteria

- ✧ Those parents who were capable of communicating and willing to participate.

4.5.2. Exclusion criteria

- ✧ Those parents' children with suspected cancer or unconfirmed diagnosis.
- ✧ Those parents' children with cancer who were seriously sick at the time of the interview.

4.6. Sample size determination and sampling technique

The sample size was calculated by using a single population proportion formula considering the following assumptions. Since there is no study conducted before in a similar setting. The overall level of parent's resilience among parents of children with cancer (P) =50%.

$$n = \frac{\left(Z \frac{\alpha}{2}\right)^2 (p)(1-p)}{d^2} \quad n = \frac{(1.96)^2 (0.5)(0.5)}{0.05^2} = 384$$

Assumptions

- ✧ n= Sample size estimation of single population proportion
- ✧ α = critical value at 95% CI (1.96)
- ✧ P= Overall level of parent's resilience among parents of children with cancer (50%)
- ✧ d = Marginal error/Degree of precision= 5% (0.05)

Finally, by adding, expected 10% non-response rate, the final sample size was =423

However, the census approach was used due to the small number of source population during the study period which was, 126. All parents' children with cancer who was fulfilled the inclusion criteria and visited the center was included in the study.

4.7. Variables

4.7.1. Dependent Variable

Parent's resilience

4.7.2. Independent Variables

Sociodemographic characteristics: parent's gender, place of residence, mothers employment status, father's employment status, mothers' educational level, fathers' educational level, monthly family income, marital status, religion, distance from hospital and social support.

Behavioral predictors: attending recreational activities, contact with religious leaders.

Children health related characteristics: Children gender, children age, relapsed history, number of children in the household and children types of malignancy.

Service-related predictors: Receiving health information, treatment duration and types of treatment.

Psychological related predictors: Anxiety, Depression, and Stress.

4.8. Operational Definition

Resilience- Resilience scale was measured by the 25-items five-point Likert scale (0=not true at all, 1=rarely true, 2=sometimes true, 3= often true and 4=true nearly). When computing the sum of each individual item responses, it becomes continuous scale. Based on this, the total sum continuous score of the scale was minimum 29 and maximum scale was 86.

Contact with religious leader: Parents experience of visiting their religious leader (Sheki, priest, pastor, or pops) within the course of treatment.

Children: who are less than 18 years old.

Recreational activity: Any activities reported as recreational activities except substance abuse.

Depression, Anxiety, stress (DAS) scale; The DAS scale was measured by a 21-item four-point Likert scale (7 for each). When computing the sum of individual item responses and multiplying by two, the total continuous score of the scale was range from 0 to 42 for each scale. The scores of depression, anxiety, and stress scales were classified into normal, mild, moderate, severe, and extremely severe categories.

Severity	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Sever	21-27	15-19	26-33
Extremely sever	>28	>20	>34

4.9. Data collection tools and procedures

4.9.1. Development of data collection tool

The data was collected using an interviewee-administered structured questionnaire that was adapted from different kinds of literature based on the study objectives(19,20,23,29,30,32,34,35,37,40,49,51,54,55,61). The tools were containing six parts.

Part one: contain sociodemographic characteristics that composed of 11 items.

Part two: Measured by depression anxiety stress Scales. This scale consisted of 21 items responded through a 4-point Likert scale (0=never, 1=sometimes, 2=often, and 3=almost always). Thus, the scores could range from 0 to 63, with higher scores indicating higher levels of depression, anxiety, and stress. Each of the sub-scales of depression, anxiety, and stress was examined with seven items for each. Since DASS21 was a short form of DASS and each scale was multiplying by two(62). In the present study the reliability test (Cronbach's alpha coefficient) of the scale was 0.86.

Part three: Children health related characteristics which comprises 5 items. Part four with two item questions which was helped to measure behavioral factors for resilience. Part five with three item questions, which was assessed the service-related predictors of resilience.

Part six: with 25 items Connor-Davidson Resilience Scale and each item was valued based on 5-point Likert scale (0-Not true at all, 1-Rarely true, 2-Sometimes true, 3-Often true 4, always true). The possible total score can range from 0 to 100, the higher the score the more resilient. It was developed by Connor and Davidson in the United States in 2003. The reliability with a Cronbach's alpha of 0.89(63). In the present study, the Cronbach's alpha coefficients was 0.83. Moreover, the tool was assessed and confirmed in different countries like China, India, Turkey, Korea, Iran, and

Africa. Also, it was translated and tested with different languages (63). The Data collection tool adapted from different published literature and modified according to the local context.

4.9.2. Data collectors

A total of four data collectors and one supervisor were recruited from the health centers of the Jimma zone. The selection criteria for data collectors were having a BSc degree in the nursing field and having experience in data collection.

4.9.3. Data collection procedures

After clarifying the purpose of the study and checking participants' willingness, the interviewer-administered data collection method was employed in a separate and quiet room. In any case, the aim of the study, confidentiality issue, and informed consent was explained and ensured to the study subjects. The principal investigator and recruited supervisors supervised, collected filled questionnaires and checked for completeness.

4.10. Data quality control

The questionnaire was prepared in English and translated in to Oromiffaa and Amharic languages and re-translated back to English by another person to check consistency. Oromiffa and Amharic version questionnaire was used for data collection from the parents. Two-days training was given to data collectors and for supervisors by principal investigators prior to data collection. Then the questionnaire was pre-tested on 5% of the study population at TASH oncology unit before the actual data collection. Prior to the actual data collection, careful modification of the data collection questionnaire was made. All filled questionnaires were checked for completeness, accuracy, and consistency.

Before data entry, data were checked for omissions, legibility of handwriting, and completeness by principal investigator and supervisor on daily bases. Necessary corrections were made after data collection. Besides this, the principal investigator carefully entered and thoroughly cleaned the data before the commencement of the analysis.

4.11. Data processing and analysis

The completed questioners were coded and entered in the data entry template in EPI DATA version 4.6.0.2. After checking and correcting errors, data were exported to SPSS Version 25 for checking the missing values and for analysis. Missing value and outliers were checked. Recoding, categorizing, computing, counting, and other statistical analyses were done. Descriptive analysis (including means, standard deviations, frequencies, and percentages) was calculated to describe the study populations about demographic and other relevant variables.

Before proceeding to run the regression analysis the assumptions of linear regression were checked using different methods to determine its fitness for this analysis. The assumption was checked, for the distribution of dependent and independent variables (multivariate normality by histogram), linearity by probability plot, autocorrelation by Durbin-Watson test, and the presence of relationship by scatter plot. Since the assumptions fulfilled, bivariate linear regression analysis was done.

The strength of the association between independent and Simple linear regression was done to select candidate variables for multiple linear regression. All variables having P-value of 0.25 during the simple linear regression analysis were considered as candidates for the multiple linear regression. Accordingly, ten variables were entered into a multi-variable linear regression. Multiple linear regression analysis was done using enter method to see the effect of the independent predictors of resilience. On multiple linear regression analysis, variables having p-values <0.05 were considered to have a statistically significant association with parents' resilience.

dependent variables were described by using unstandardized β with 95% CI. The final fitted model was constructed using forced enter multiple linear regression analysis method. Also, Multicollinearity was checked by examining the variance inflation factors (VIF) and it showed that there is no multicollinearity on the final model: The value for each variable was less than ten.

4.12. Ethical consideration

Ethical clearance was obtained from the Ethics Review Board of Addis Ababa University college of health science, school of nursing and Midwifery. Permission was obtained from the pediatric oncology unit at JMC. Written informed consent for the interviewee was obtained from each study participant. To keep the physical privacy of the respondents' separate place, it was prepared for the interview purpose. Participants were assured of their right to withdrawal from the interview at any time. Names and other personal information, which can violate the confidentiality of the study subjects, were not taken or recorded. Any information was kept confidential. During data collection, parents having severed anxiety and extremely severe stress were tried to link to health professionals for psychiatric consultation and treatment.

4.13. Dissemination of the results

The research findings will be presented to the Addis Ababa University graduate research program. After approval, submission of the final document (both hard copy and soft copies) will be made to stakeholders, Addis Ababa University School of nursing and midwifery, JMC oncology unit, for enhancing the use of findings. Finally, efforts will be made efforts to publish research findings on peer-reviewed and reputable national or international journal.

5. RESULT

5.1 Socio-demographic characteristics of the study participants

Among the total of 126 participants in the study period, 122 responded the questionnaires completely which gives a response rate of 96.8%. Little more than half (54.1%) of the respondents were mothers. With regard to occupation, 70(57.4%) mothers were self-employed whereas 85(69.7%) of the fathers were self-employed. In addition, 86(69.7%) of participants were rural in resident. Concerning marital status 113(92.6%) of the participants were married. Furthermore, 63(51.6%) mothers can't read and write and 41(33.6%) and 18(14.8%) of the fathers had primary and secondary school degrees, respectively.

Regarding to religion, seventy-one (58.2%) of the study subjects belonged to Muslim. Concerning the social support, 104(85.2%) reported of receiving support from family. The median monthly income of the respondents was found to be 2746.15 Ethiopian Birr ranging between 500-8000 ETB. Regard to distance from the hospital, the mean (SD) distance of parent's children with cancer from JMC were 58.30±49.8km with a range of 1-200km (Table-1)

Table 1: Socio-demographic characteristics of parent's children with cancer at Jimma medical center, Oromia, Ethiopia, February 25, 2012 to April 25, 2020 (n=122)

Variables	Category	Frequency	Percentage
Parent's gender	Mother	66	54.1
	Father	56	45.9
Place of residence	Urban	35	29.5
	Rural	87	70.5
Mothers' employment status	House wife	31	25.4
	Self employed	70	57.4
	Government employed	19	15.6
	Unemployed	2	1.6
Fathers' employment status	Self employed	85	69.7
	Government employed	37	30.3

Mothers educational level	Can't read and write	63	51.6
	Primary	30	24.6
	Secondary	11	9.0
	Diploma and above	18	14.8
Fathers educational level	Can't read and write	38	31.1
	Primary	41	33.6
	Secondary	18	14.8
	Diploma and above	25	20.5
Marital status	Married	113	92.6
	Divorced	8	6.6
	Widowed	1	0.8
Religion	Orthodox	26	21.3
	Catholic	2	1.6
	Protestant	23	18.9
	Muslim	71	58.2
Social support	Support from family	104	85.2
	Support from friends	38	31.1
	From significant others	59	48.4

5.2. Children health related factors, parents' behavioral characteristics and service-related information.

More than half of (64.8%) children with cancer were females. Moreover, the mean age of the children was 7.11 years and 4.09 standard deviation with a range of 1-18 years old. More than two third (75.4%) of the participants had children with no history of relapse. In addition, 107(87.7%) of households have more than one child. Leukemia was the most common malignancy type among children which was experienced by 59(48.4%) participants. Majority of parents 116(95.1%) were

not reported to have experienced of recreational activities. Though, many of the participants 62(50.8%) were had frequent contact to their religious leaders.

Among the study participants, 92 (75.4%) got information from the health care providers. Regarding the treatment more than half of the treatment 76 (62.3%) was chemotherapy. In addition, the treatment duration was averagely 8±5.54 month. (Table-2)

Table 2:Child health related, parents behavioral and service-related characteristics at Jimma medical center, Oromia, Ethiopia, February 25,2020 to April 25,2020 (n=122).

Variables	Category	Frequency	Percentage
Child's Gender	Male	79	64.8
	Female	43	35.2
History of relapse	Yes	30	24.6
	No	92	75.4
Number of children in the HH	1	15	12.3
	>1	107	87.7
Type of malignancy	Leukemia	59	48.4
	Lymphoma	26	21.3
	Abdominal tumor	16	13.1
	Musculoskeletal tumor	12	9.8
	Ocular tumor	5	4.1
Attend at recreational activities	Other	4	3.3
	Yes	6	4.9
Contact with religious leaders	No	116	95.1
	Yes	69	56.6
Received health information from HCP	No	53	43.4
	Yes	92	75.4
Type of treatment	No	30	24.6
	Chemotherapy	76	62.3
	Surgery	1	0.8
	Both	45	36.9

5.3 Psychological characteristics of participants

The mean and standard deviation score of depression was 19.04 ± 6.48 . As indicated in figure 2, 50(40.98%) had mild and 6(4.91%) had moderate depression levels. But, no one was diagnosed with severe and very severe level of depression, respectively. With regarding to level Anxiety, the mean scored and standard deviation was 15.14 and 6.58, respectively. Twenty-eight (22.95%) and 20(16.39%) of the parents had mild and moderate anxiety levels, respectively. Besides, the mean and standard deviation score of stress was 15.64 ± 6.98 ; 23(18.85%) had mildly stressed, 10(8.19%) was severely stressed and 1(0.82%) was very severely stressed. (Figure-2).

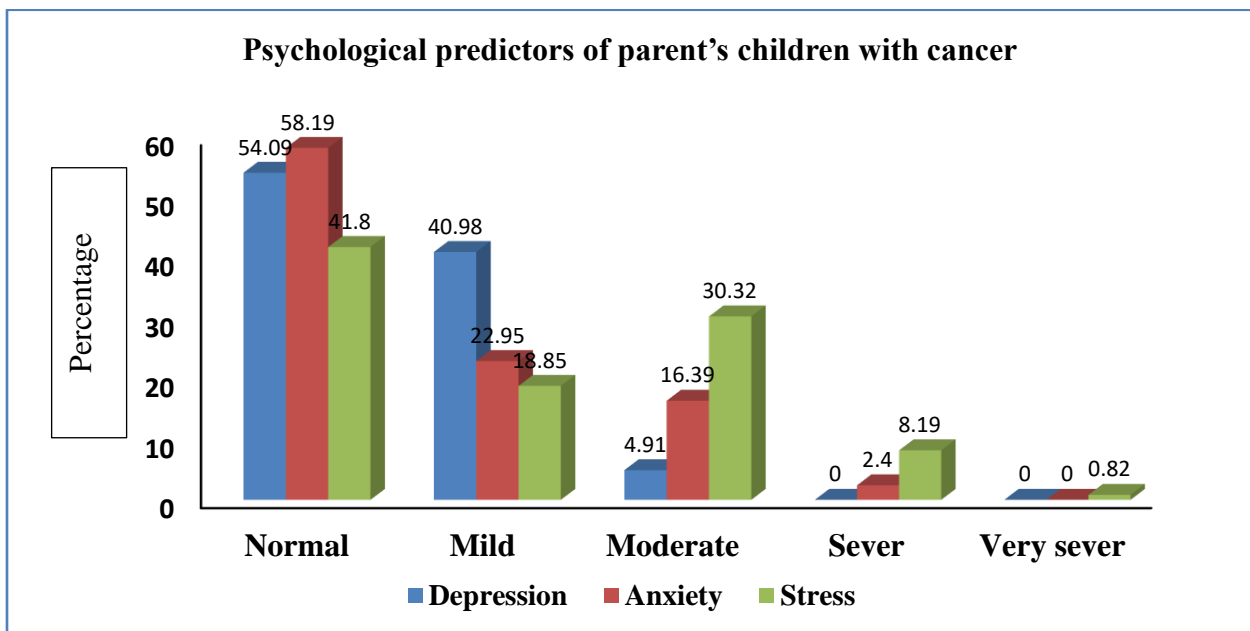


Figure 2: Psychological predictors of parent's children with cancer at Jimma medical center, Oromia, Ethiopia, February 25, 2012 to April 25, 2020 (n=122)

5.4. Level of resilience parents' children with cancer

The level of resilience among parents of children with cancer was a mean of 51.41 ± 12.02 and with a range of 29-86. Sixty-five (53.3%) of study participants had a resilience score below the mean value. The result of an independent t-test showed that the magnitude of resilience among parents of children with cancer was different between mothers with a mean and standard deviation 48.91 ± 12.34 and fathers 54.48 ± 1.99 , respectively.

5.5. Predictors of resilience among parents of children with cancer

Simple linear regression analysis was done between each socio-demographic characteristics and resilience in order to select variables for multiple linear regression. Parents gender ($p=0.01$), mother's employment status ($p=0.009$), monthly family income ($p=0.001$), support from friends ($p=0.001$) had P- value ≤ 0.25 and considered for further analysis. Similarly, level of depression ($p<0.001$), level of anxiety ($p=0.013$), and level of stress ($p<0.001$) were a selected from psychological variables for farther multiple linear regression analysis.

Among service related, behavioral and children's characteristics; types of malignancy (abdominal tumor ($p=0.001$)), lymphoma ($p=0.040$), received health information from health care professionals ($p<0.001$) and types of treatment (both surgery and chemotherapy) ($p=0.016$) had relationship with level of resilience at p-value ≤ 0.25 in simple linear regression. Consequently, we used them for multiple linear regression.

5.6. Independent predictors of resilience among parents of children with cancer

In multiple linear regression analysis, social support, depression, and received health information from HCP were found to be significant predictors of resilience. Thirty percent of variation in resilience of parents' children with cancer can be explained by the model and the remained 70% can be explained by other factors. (R Square =0.300, unadjusted R Square=0.358) of the variability in the magnified of resilience among parents of children with cancer. (Table-3)

Keeping constant all other variables in the model, one-unit increase in support from friends increases resilience of the parents by 5.67. (95%CI=1.23, 9.51; $P=0.011$). The result also showed that, keeping other factors constant one-unit increase health information from HCP increases resilience of the parents by 6.377 (95%CI= 1.404,10.726, $P=0.012$).

However, there is a negative linear association between depression and resilience among parents of children with cancer. Keeping other factors constant one-unit increase in depression score decreases resilience of the parents by - 0.827 (95%CI= -1.634, -0.048; $P=0.038$) (Table-3).

Table 3: Multiple linear regression analysis predicting parents' resilience at JMC, Oromia, February, 25, 2020 to April 25,2020 (n=122).

Predictors	Unstandardized β	95%CI of β	p-value
Gender			
Mother	-0.515	-4.48, 3.45	0.798
Father	1.00		
Mother employment			
House wife	-3.097	-7.74, 1.55	0.190
Self-employed	1.00		
Support from friends	5.67	1.58, 9.77	0.007*
Malignancy			
Lymphoma	-0.838	-6.066, 4.389	0.751
Abdominal tumor	-2.374	-9.204, 4.456	0.492
Leukemia	1.00		
Depression	-0.827	-1.619, -0.034	0.041*
Anxiety	0.071	- 0.715,0.857	0.859
Stress	-0.591	-1.437, 0.256	0.169
Treatment Type			
Chemotherapy and surgery	-1.539	6.203, 3.126	0.515
Chemotherapy	1.00		
Received health information from HCP	6.377	1.754, 11.00	0.007*

*Constant=58.9, R=0.598, R Square =0.358, Adjusted R Square=0.300; * Significant at p value <0.05, Dependent variable: Parent resilience. Max VIF 2.01 (no Multi-collinearity: VIF <10).*

6. DISCUSSION

This study was assessing the magnitude of resilience and its predictors among parents of children with cancer at Jimma medical center and it showed that the level of resilience among parents' children with cancer was low. Support from friends and receiving health information from health care professionals were positively associated with resilience. Whereas, parents' depression was negatively associated with resilience.

The present study showed that the total mean and standard deviation of parents' resilience score was 51.41 and 12.02, respectively. This finding is comparable with the result of two researches done in China which showed that the mean (SD) of resilience score among parents of children with cancer were similar to our study(8,21). This finding may imply that parents 'of children with cancer were in danger to develop physical and mental problems that contributes to have difficult to recover from the traumatic situation.

The present finding was lower than the result of research which was done in Iran(22). In the same way in another study in which was conducted Iran and India also showed the same report(20,25). This difference may be due to differences in the medical service and socioeconomic status in which better medical technologies might be available in Iran and India compared to our country and this may lead better prognosis on child health status leading to low parents' resilience.

Based on this finding, there was a statistically significant difference in mean resilience between mothers and fathers of children with cancer. This implies that mothers had low resilience and therefore face the problem more than fathers because of children with cancer. The finding is supported by previous research findings done in Iran(9). This might be because of culturally women are more compassionate to take of their child and acceptable by the society as normal. And also, this could be because mothers have more attachment with their children than their fathers

The way people perceive social support were differently in different culture and in different society. In Middle East and Asian countries people fear to receive social support in relation to childhood cancer due to fear of stigma. Studies showed that giving social support may not be always helpful, it may be leads to parents to have low resilience(39). However, in the present study receiving social support is a positive predictor of parent's resilience; having history of support

from friends resulted in increment of resilience among parents of children with cancer. This might be due to differences in culture, societal educational level, working habit and also religion. So, understanding societal culture is very crucial to find best ways to help and to enhance parents' resilience.

In this study there is a negative association between parental depression and resilience. This study was supported by study conducted in Iran and china(12,47).This finding also supported by the study conducted in Jordan, Greek, and Bangladesh(31,48,49). This implies that, parents' psychological disturbance will contribute to decline their level of resilience. Those who had no depression on parents' children with cancer had better level of resilience.

In the present study there is a significant positive association between receiving health information about cancer from health care professional and resilience. Receiving health information about cancer treatment from health care professional resulted in increment of resilience. Providing information in appropriate time could help to avoid unnecessary distress, this helps parents to have better resilience. The finding is supported by study conducted in Switzerland, which was showed that the medical staff especially health care providers can most directly have an impact on improving psychological factors that helped to decrease parental distress that helps parents to have a better adaptation to the stressful situation(57).

Consistent to this idea study conducted in Finland reported, lack of information about the diseases and treatment plan created distrust on health care provider and leads parents to be worried and frustrated, which contributes to low resilience(56). This indicates that parents need to have right information about the diseases and its treatment plan, and also, they need to know every procedural and therapeutic information. This may be due to their own prior misinformation about the disease, characteristics or its treatment, fearing of hectic hospital environment.

Limitation of the study

Since our study population was small, it leads to limit our generalizability of the findings on parents' children with cancer and difficult to incorporate additional predictors. So, it needs a large sample size to incorporate other aspects of parents' resilience in children with cancer.

7. CONCLUSION AND RECOMMENDATION

7.1 Conclusion

In conclusion, the magnitude of resilience among parents of children with cancer was low in relative to previous studies. More than half of study participants were having resilience score of below the mean value.

Receiving support from friends and receiving health information from health care professionals are positive predictors of resilience, whereas, parents' depression was negative predictors of resilience.

7.2 Recommendations

Jimma Medical Center

- Health education and client communication procedures requires reconsideration based on the client's ability to understand the messages and health care professionals should have regular health education and communication programs by including strategies that improve resilience.
- Jimma medical center should focus to give a comprehensive service to parents' children with cancer in oncology unit and create a strong and organized multidisciplinary team in order to help specific and special supports to improve children's health as well as parent resilience.
- Better the hospital incorporates different governmental, non-governmental stakeholders and a community at large create social support groups that continuously support and improve psychological health of the parents.

Ministry of Health

- Ministry of health should scale up to professional development like psychologists to employ on cancer and its related services in quality and quantity in order to give the service at large especially for those parents' children with cancer.
- Also, the Ministry of health should include parents' health children with cancer as one of the disciplines and support them to improve parents' health.

Researchers

- Further study is recommended identifying more additional factors with a large sample size and a relatively strong study design and level of resilience on other chronic diseases in order to improve parents' health.

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ANNEX

Annex 1: English Version data collection tool

Annex 1.1: Information Sheet

Good morning, Good afternoon, good evening [According to its convenience]. My name is _____ I came from TASH, school of nursing and midwifery oncology department. I am here to gather information about parents' children with cancer on this health institution. You are kindly requested to be included in the study, which will have importance in improving parental health. I would like to ask you about your experience of positive adaptation to child's cancer and factors associated to it. I would like to inform you that your name will not be written anywhere in this paper.

There are no risks associated with participating in this study. Participation in this study or refusal to participate will not affect your Ability to access health services or any other services. The interview takes about 15 to 20 minutes to complete. Participation in this survey is voluntary and you can choose not to answer any personal questions or all the questions. But I kindly request your willingness to participate in the survey to meet its goals and benefit for future generation.

Are you willing to participate in the interview?

Yes, Go to next interview No, Thank you! Proceed to next eligible participant

If you have something to ask concerning the study, you can contact the principal investigator.

The questionnaire has five parts; some of the questions have their own set of

Instructions: please follow the instructions strictly

Annex1.2: Consent form

I the undersigned have been informed that the purpose of this particular study is to assess Resilience and its predictors among parents' children with cancer. I have been informed that I am going to respond to these questions by answering what I know the information I give will be treated confidentially. I have also been informed that I can refuse to participate in the study or not to respond partial or the whole questions I am not interested. Furthermore, I have been informed that I can stop responding to the questions at any time in the process. Based on the above information I agree to participate in the study voluntarily with the hope of contributing to the effort of knowing resilience and its predictors among parents' children with cancer.

Signature_____

Date_____

Questionnaire's Code number_____

Date of interview_____ Start time_____ end time_____

Annex 1.3: English Questionnaire (English version)

Part I: Socio-demographic characteristics of parents of children with cancer at JMC.

Sno	Variables	Answers	Remark
101	Parent's gender	1. Mother 2. Father	
102	Place of residence	1. Urban 2, Rural	
103	Mothers employment status	1. House wife 2. Self Employed 3. government employed 4. Other	
104	Father's employment status	1. Self-employed 2. government employed 3. Other	
105	Mothers educational level	1. Illiterate [cannot read and write] 2. Primary [1-8] 3. Secondary [9-10] 4. College diploma and above	
106	Fathers educational level	1. Illiterate [cannot read and write] 2. Primary [1-8] 3. Secondary [9-10] 4. College diploma and above	
107	Marital status	1. Engaged 2. Divorced 3. Widowed	
108	Monthly family income	_____ETB	
109	Religion	1. Orthodox 2. Catholic 3. Protestant 4. Muslim 5. other	
110	How long it takes for arriving to the Hospital. (Distance from JMC in KM)	_____KM	
111	Social support	1. support from family 2. support from friends 3. support from significant others	

Part II: Psychological predictors

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement. **A-anxiety D-depression S-stress**

The rating scale is as follows: 0 Never, 1 Sometimes, 2 Often, 3 Almost always

SNo	Items	0	1	2	3
	Anxiety scales				
201	I was aware of dryness of my mouth				
202	I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)				
203	I experienced trembling (e.g. in the hands)				
204	I was worried about situations in which I might panic and make a fool of myself				
205	I felt I was close to panic				
206	I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)				
207	I felt scared without any good reason				
	Depression scales				
208	I couldn't seem to experience any positive feeling at all				
209	I found it difficult to work up the initiative to do things				
210	I felt that I had nothing to look forward to				
211	I felt down-hearted and blue				
212	I was unable to become enthusiastic about anything				
213	I felt I wasn't worth much as a person				
214	I felt that life was meaningless				
	Stress scales				
215	I found it hard to wind down				
216	I tended to over-react to situations				
217	I felt that I was using a lot of nervous energy				
218	I found myself getting agitated				
219	I found it difficult to relax				
220	I was intolerant of anything that kept me from getting on with what I was doing				
221	I felt that I was rather touchy				

Part III: Children health related predictors

Sno	Variables	Answers	Remark
301	Children Gender	1 Male 2. Female	
302	Children age	-----	
303	Relapsed history	1.Yes 2. No	
304	Number of children in the HH	-----	
305	Children types of malignancy	1. Leukemia 4. Abdominal tumor 2. Lymphoma 5. Musculoskeletal tumor 3. Brain tumor 6. Ocular tumors 7. Others	

Part IV: Behavioral predictors

Sno	Questions	Answer	Remark
401	Did you attend recreational activities?	1. Yes 2. No	
402	Did you have frequent contact with religious leaders	1. Yes 2. No	

Part V: Service-related variables

Sno	Questions	Answers	Remark
501	Have you an information about cancer treatment from health provider	1. Yes 2. No	
502	Treatment duration	_____ Years.	
503	Treatment type	1. Chemotherapy 2. Surgery 3. both	

Part VI: Level of resilience among the parents of children with cancer at Jimma Medical Center, 2020

0=not true at all 1= Rarely true 2=Sometimes true 3=Often true 4 = True nearly all the time

<u>SNo</u>	Items	0	1	2	3	4
1	Able to adapt to change					
2	Close and secure relationships					
3	Sometimes fate or God can help					
4	Can deal with whatever comes					
5	Past success gives confidence for new challenge					
6	See the humorous side of things					
7	Coping with stress strengthens					
8	Tend to bounce back after illness or hardship					
9	Things happen for a reason					
10	Best effort no matter what					
11	You can achieve your goals					
12	When things look hopeless, I don't give up					
13	Know where to turn for help					
14	Under pressure, focus and think clearly					
15	Prefer to take the lead in problem solving					
16	Not easily discouraged by failure					
17	Think of self as strong person					
18	Make unpopular or difficult decisions					
19	Can handle unpleasant feelings					
20	Have to act on a hunch					
21	Strong sense of purpose					
22	In control of your life					
23	I like challenge					
24	You work to attain your goals					
25	Pride in your achievements					

Annex 2: Amharic Version Questioner

አዲስ አበባ ዩንቨርሲቲ የድህረ-ምረቃ ትም/ ቤት ጤና ህክምና ሳይንስ ኮሌጅ የነርቪንግ ክፍል፡

ሀ. የጥናቱ መረጃ፡- ጤና ይስጥልኝ፣ጠዋት እንደምን አደርክ/ሽ ፣ ከሰዓት እንደምን አመሽህ/ሽ [እንደሁኔታው]፡፡

ስሜ _____ ነው ፡፡ የመጣሁት የነርቪንግ ፣ የአዋላጅ እና ኦንኮሎጂ የትምህርት ክፍል ነው ፡፡ እዚህ የጤና ተቋም ውስጥ ካንሰር ስላለባቸው ልጆች ወላጆች መረጃ ለመሰብሰብ እዚህ መጥቻለሁ ፡፡ የወላጅ ጤና ለማሻሻል ጥናት አስፈላጊ ሆኖ በመገኘቱ በጥናቱ ውስጥ እንዲካተቱ በትህትና እንጠይቃለን ፡፡ ከልጅ ካንሰር ጋር ስላለው አወንታዊ መላመድ ልምድን እና ከሱ ጋር ተያያዥነት ላለው ምክንያቶች ልጠይቅዎ እፈልጋለሁ፡፡ በዚህ ጽሑፍ ውስጥ ስምህ/ሽ በየትኛውም ሥፍራ እንደሚጻፍ ላሳውቅህ እፈልጋለሁ ፡፡ በዚህ ጥናት ውስጥ ከመሳተፍ ጋር ተያይዘው የሚመጡ አደጋዎች የሉም ፡፡ በዚህ ጥናት ውስጥ መሳተፍ ወይም ለመሳተፍ ፈቃደኛ አለመሆን የጤና አገልግሎት ወይም ሌሎች አገልግሎቶች ላይ ጉዳት አይኖረዎትም ፡፡ ቃለመጠይቁ ለማጠናቀቅ ከ 15 እስከ 20 ደቂቃ ይወስዳል ፡፡ እናም ማንኛውንም የግል ጥያቄዎች ወይም ሁሉንም ጥያቄዎች ላለመመለስ መምረጥ ይችላሉ ፡፡ ነገር ግን ግቦቹን ለማሳካት እና ለወደፊቱ ትውልድ ጥቅም ለማምጣት በዳስሳ ጥናቱ ላይ እንዲሳተፉ ስል በትህትና እጠይቃለሁ ፡፡

Annex 2.1. Consent sheet (Amharic Version)

የፍቃደኝነት ማረጋገጫ ቅጽ

ከላይ የጥናቱ አሊማ፣ ጥቅሙ ፣ ጉዳቱ፣ እንዲሁም ሚስጥራዊነቱ በሚገባኝ እና በምረዳው ቋንቋ ተገልጻልኛል፡፡ በጥናቱ ላይ ያህል መሳተፍም ሆነ ከጀመርኩ በኋላ በፈለኩት ጊዜ አቋርጬ የመሄድ ሙሉ መብት አለኝ፡፡

በዚህ ጥናት ላይ ተሳትፎዬ ፈጽሞ በፍላጎት ላይ የተመሰረተ ነው፡፡

በዚህ ጥናት ላይ የመሳተፍ ፍቃደኛ ነዎት?

- 1. አይደለሁም (አመሰግናለሁ) 2. አዎ (እንቅጥል)

ፉርማ ----- ቀን -----

የጥናት አድራጊወ. ስም፡- እሱባለው መዝገቡ

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የጠያቂው ስም ፉርማ

Annex 2.2: Amharic version structured questionnaires

በጅማ የህክምና ማዕከል በመንግስት የጤና ተቋም ውስጥ የህጻናት ካንሰር ህመምን ወላጆች መካከል በአማርኛ የተዘጋጀ መገምገሚያ ቅጽ ::

ክፍል 1- በጅማ የህክምና ማዕከል ካንሰር ካለባቸው ልጆች ወላጆች ጋር የተደረገ ማህበራዊና ግላዊ መረጃ

መለያ ቁጥር	ጥያቄዎች	መልስ	ምልክት ያድርጉ
1	የወላጅ ጾታ	1. እናት 2. አባት	
2	የመኖሪያ ቦታ	1. ከተማ 2. ገጠር	
3	የእናቶች የሥራ አይነት	1. የቤት አመቤት 2. የግል ስራ 3. የመንግሥት ተቀጣሪ 4. ገበሬ 5. ነጋዴ 6. ሌላ...	
4	የአባቶች የሥራ አይነት	1. የግል ስራ 2. የመንግሥት ተቀጣሪ 3. ገበሬ 4. ነጋዴ 5. ሌላ...	
5	የእናቶች የትምህርት ደረጃ	1. ማንበብ እና መጻፍ ማይችሉ 2. የመጀመሪያ ደረጃ [1-8] 3. ሁለተኛ ደረጃ [9-10] 4. የኮሌጅ ዲፕሎማ እና ከዚያ በላይ	
6	የአባቶች የትምህርት ደረጃ	1. ማንበብ እና መጻፍ ማይችሉ 2. የመጀመሪያ ደረጃ [1-8] 3. ሁለተኛ ደረጃ [9-10] 4. የኮሌጅ ዲፕሎማ እና ከዚያ በላይ	
7	የጋብቻ ሁኔታ	1. ያገባች 2 የተፋታ/ች 3. ባለቤት የሞተባት/የሞተችበት	
8	ወርሃዊ የቤተሰብ ገቢ	_____ የኢትዮጵያ ብር	
9	ሃይማኖት	1. ኦርቶዶክስ 2. ካቶሊክ 3. ፕሮቴስታንት 4. ሙስሊም 5. ሌላ ይግለጹ ___?	
10	ወደ ሆስፒታል ለመድረስ የሚወስደው ጊዜ? (በኪሎ ሜትር ከጅማ የህክምና ማዕከል ያለው ርቀት)	_____ ኪሎ ሜትር	
11	ማህበራዊ ድጋፍ	1. ከቤተሰብ 2. ከጓደኞች 3. ከድጋፍ ሰጭ አካላት	

ክፍል 2:- የስነልቦና ትንበያ መጠይቅ

እባክዎን እያንዳንዱን መግለጫ ያንብቡ እና ያለፈው ሳምንት ለእርስዎ ምን ያህል ተግባራዊ እንደነበረ የሚገልጽ ቁጥር 0 ፣ 1 ፣ 2 ወይም 3 ያክቡ ። ትክክለኛ ወይም የተሳሳቱ መልሶች የሉም። በማንኛውም መግለጫ ላይ ብዙ ጊዜ አይጥሩ ።

ሀ - መረበሽ ዲ-ድብርት ኤስ-ጭንቀት

የደረጃ አሰጣጥ መለኪያ እንደሚከተለው ነው። 0 - በጭራሽ ፣ 1 - አንዳንድ ጊዜ ፣ 2 - ብዙውን ጊዜ 3 - ሁልጊዜ

መለያ ቁጥር	ጥያቄዎች				
	የፍርታት መለኪያ	0	1	2	3
1	የአፌን መድረቅ ተገንዝቤ ነበር				
2	ያተነፋፈሰ ችግር ገጠሞኝ ነበር (ለምሳሌ ፣ በጣም በፍጥነት መተንፈስ ፣ የአካል እንቅስቃሴ በሌለበት የትንፋሽ እጦት)				
3	መንቀጥቀጥ ገጠሞኝ ነበር (ለምሳሌ በእጆቹ ውስጥ)				
4	በሁኔታው ተጨንቄ ነበር				
5	ለፍርሀት ቅርብ እንደሆንኩ ተሰማኝ				
6	የአካል ብቃት እንቅስቃሴ በሌለበት ሁኔታ የልቤ ስራ ተገንዝቤ ነበር (ለምሳሌ ፣ የልብ ምት መጨመር ፣ የልብ ምት መስተጉጎል)				
7	ያለምንም ምክንያት ፍርሃት ይሰማኝ ነበር				
	የድብርት መለኪያ				
8	እኔ ምንም አዎንታዊ ስሜት በጭራሽ አላገኘሁም				
9	ስራ ለመስራት ተነሳሽነት የለኝም ነበር				
10	በጉጉት የምጠብቀው ነገር እንደሌለኝ ተሰማኝ				
11	የበታችነት ስሜት ተሰማኝ				
12	ለምንም ነገር ጉጉት የለኝም				
13	እንደ ሰው ክብር እንደሌለኝ ተሰማኝ				
14	ሕይወቴ ትርጉም የለሽ ሆኖ ተሰማኝ				
	የጭንቀት መለኪያ				
15	የበታችነት ስሜት ተሰማኝ				
16	ሁኔታዎቼን ከመጠን በላይ ተቋቋሜ ነበር				
17	በስሜት ብዙ ጉልበት እየተጠቀምኩ እንደሆነ ተሰማኝ				
18	ተናደድኩ				
19	ዘና ለማለት አስቸጋሪ ሆኖብኝ ነበር				
20	የማደርገውን ነገር እንዳላደርግ የሚያግደኝን ማንኛውንም ነገር በትዕግስት አላለፍኩም				
21	ይልቁን ስሜት ቀስቃሽ እንደሆንኩ ተሰማኝ				

ክፍል 3- ከህጻናት ጤና ጋር የተያያዙ ባህሪያት

መለያ ቁጥር	ጥያቄዎች	መልስ	ምልክት
1	የልጆች ጾታ	1. ወንድ 2. ሴት	ምልክት
2	የልጆች ዕድሜ በወር/በአመት	-----	
3	በሺታዉ እንደገና አገርሺቷል?	1. አዎ 2. የለም	
4	በቤት ውስጥ ያሉት የልጆች ብዛት	-----	
5	የካንሰር አይነት	1. የደም 2. ሊምፎማ 3. የጭንቅላት 4. የሆድ 5. የአጥንትና መገጣጠሚያ 6. የአይን 7. ሌላ -----	

ክፍል 4- የባህሪ ትንበያ መጠይቅ

መለያ ቁጥር	ጥያቄዎች	መልስ	ምልክት
1	በመዝናኛ ስፍራዎች ላይ ተገኝተው ያዉቃሉ?	1. አዎ 2. የለም	
2	ከሃይማኖት መሪዎች ጋር በተደጋጋሚ ተገናኝተው ነበር?	1. አዎ 2. የለም	

ክፍል 5- ከአገልግሎት አሰጣጥ-ጋር የተያያዙ ጥያቄዎች

መለያ ቁጥር	ጥያቄዎች	መልስ	ምልክት
1	ስለ ካንሰር ሕክምናው ከጤና ባለሙያው መረጃ አግኝተዋል?	1. አዎ 2. የለም	
2	የሕክምናው ጊዜ	_____ ወራት/ዓመታት።	
3	የሕክምናው ዓይነት	1. ኬሞቴራፒ 2. የቀዶ ጥገና 3. ሁለቱም	

ክፍል 6- በጅም ህክምና ማእከል ካንሰር ያለባቸው ታካሚ ልጆች የወላጆች ችግርን የመቋቋም ብቃት

0 - በጭራሽ 1 - አልፎ አልፎ 2 - አንዳንድ ጊዜ 3 - ብዙውን ጊዜ 4 - ሁል ጊዜ

መለያ ቁጥር	ጥያቄዎች	0	1	2	3	4
1	ለውጥን መላመድ የሚችል					
2	ሚስጥራዊ እና አስተማማኝ ግንኙነት					
3	አንዳንድ ጊዜ ዕድል ወይም እግዚአብሔር ሊረዳ ይችላል					
4	የሚመጣውን ሁሉ መቋቋም ይችላሉ					
5	ያለፈው ስኬት ለአዳዲስ ፈተናዎች በራስ መተማመንን ይሰጣል					
6	ነገሮችን በቀልድ ይመለከታሉ					
7	ጭንቀትን መቋቋም ያጠነክራል					
8	ከህመም ወይም ከችግር በኋላ ወደ ኋላ ተመልሶ ማስብ					
9	ነገሮች በምክንያት ይከሰታሉ					
10	ምንም ይሁን ምን ቢከሰት ጥረት አደርጋለሁ					
11	ግቦችዎን ማሳካት ይችላሉ					
12	ነገሮች ተስፋ ቢስ ሲሆኑ ተስፋ አልቆርጥም					
13	ለእርዳታ የት መሄድ እንዳለብዎ ያውቃሉ					
14	ምንም በግፊት እና በጫና ውስጥ ቢሆኑም በደንብ ያስባሉ					
15	ችግርን በመፍታት ግንባር ቀደም ይሆናሉ					
16	በውድቀት በቀላሉ ተስፋ ይቆርጣሉ					
17	እራስዎን እንደ ጠንካራ ሰው አድርገው ያስባሉ					
18	ተቀባይነት የሌላቸውን ወይም ከባድ ውሳኔዎችን ይደሰናሉ					
19	ደስ የማይል ስሜቶችን ማስተናገድ ይችላሉ					
20	በችግር ጊዜ እርምጃ መውሰድ ይችላሉ					
21	ጠንካራ ዓላማ አሎት					
22	ሕይወትዎን እንዳፈለጉት ይመራሉ					
23	ፈተና ይወዳለሁ					
24	ግቦችዎን ለማሳካት ይጥራሉ					
25	በስኬተኛ ይኮራሉ					

Annex 3: Waraqaa Deebii

Ganama- akkam bulte ; Waaree booda-Akkam ooltan ; Maqaan koo_____jedhama.Kanan dhufee kutaa barumsaa Narsiingii, Deesisuu fi onkoolojii irrati. Kaayyoon ani bakka kana dhufeef, dhaabbata fayyaa kana keessatti maatii daa'imman isaani dhibee kaanseriin qabaman irraa odeeffannoo funaannachuufi dha.Kanaafuu, fayyaa maatii tokkoo ammo fooyyessuuf qorannon barbaachisaa waan ta'eef ,qo'annoo kana keessatti gargaarsii fi hirmaannan keessan fiixaan bahiinsa qo'anno kanaaf hedduu barbaachisaa dha. Kanaafuu , deebiin sirrin ykn sirri hin taane waan hinjiru.Qo'annoo kana keessatti maqaan keessan akka hin caqafamne isinii ibsaa, qo'annoo kana irratti hirmmachuunis ta'e hirmmachuu dhabuun tajaajila fayyaa kennamu ykn tajaajila biro irratti rakkoo inni fidu hinjiru.Qo'annichaan walqabatees rakkon dhufu kamuu hinjiru.Kanaaf yaada keessan ifaa fi bilisa taatanii akka naaf kennitan kabajanan isin gaafadha.

Hirmaannaa gootaniif guddan isin galateeffadha.

Gaafanna kana keessatti Himaachuuf fedha keessani?

Eeyyee- _____ Gaaffii itti aanutti ce'a Lakkii- _____

Hirmaataa itti aanutti fufi

Qo'anno kana ilaalchisee gaaffii isin gaafachuu barbaaddan yoo jiraate nama hirmaachisaa qo'annichaa ta'e gaafachuu dandeessu. Gaaffiwwan kun kutaalee shan qaba. Tokkoon tokkon gaafilee kanaa itti gala mataa isaanii ni qabu.

Qjeelfama kenname haalan hrdofi

Annex 3.1: Gaaffilee ragaan ittin funaanamu

Dhaabbata diddu-gala waldhansa fayyaa Jimmaa keessatti maatii daa'imman dhibee kaanseriin qabamanii giddutti boca madaalli Amaariffan dhiyaatee.

Kutaa 1ffaa. Giddu-gala waldhansa fayyaa Jimmatti qo’anno xin-hawaasumma maatii daa’imman dhibee kanserriin qabamanii waliin taasifame

Lakk. addaa	Gaaffilee	Deebii	Mallattoo
101	Saala maati	1. Haadha 2. Abbaa	
102	Bakka Jireenyaa	1. Magaalaa 2. Baadiyyaa	
103	Hojii maatiin irratti bobba’an	1. Maatii kunuunsuu/ hadha qe’ee 2. Hojii dhuunfaa 3. Hojjettuu mootummaa 4.Qote bultuu 5. Daldaltuu 6..Kan biroo_-----	
104	Hojii abbootiin daa’immanii irratti bobba’an	1. Hojii dhuunfaa 2. Hojii mootummaa 3. Qote bulaa 4. Daldalaa 5. Kan biro----	
105	Sadarkaa barnoota haadholii	1. Dubbisuu fi barreessuu kan hindandeenyee 2. Sadarkaa 2ffaa (1-8) 3.Sad. 2ffaa (9-10) 4.Dipiloomaa kollejii fi isaa ol.	
106	Sadarkaa barnoota abbotii daa’immanii	1. Dubbisuu fi barreessuu kan hindandeenyee 2. Sadarkaa 2ffaa (1-8) 3.Sad. 2ffaa (9-10) 4.Dipiloomaa kollejii fi isaa ol.	
107	Haala gaa’ilaa	1. Kan heerumte/fuudhe 2. Kan wal-hiikan/adda bahan 3. Haati warraa/abbaan warraa kan jalaa duute/du’e	
108	Galii maatiin ji’aan argatu	Qarshii Itiyoopiyaa _____	
109	Amataa maatiin hordofu	1. Ortodoksii 2. Kaatolikii 3.Piroteestantii 4. Isilaama 5. Kan biro_____	
110	Fageenya waldhansa fayyichaa kilomeetiraan (mana yaalichaa ga’uuf yeroo hammamii isinitti fudhata)?	1.Kilomeetira _____ 2. Sa’atii _____	
111	Deggarsa hawaasummaa	1.Maatii irraa 2. Hiriyyaa irraa 3. Namoota guguddaa irra 4. Kan biroo_____	

Kuta 2ffaa. Gaaffi Xin-Sammuu

Ibsa armaan gaditti kenname dubbisii turban darbe wantoota kana hagam hojiirra oolchite yaada jedhu lakkoofsa kenname kana keessaa filadhuu itti mari.

0 1 2 ykn 3

A. Jeeqama Sammuu- Mukaa'uu- Dhiphina sammuu

Safartuun sadarkaan ittin kennamu kan armaan gaditti

Lakk. addaa	Gaaffilee				
	Safartuu jeeqama sammuu agarsiisan	Gonkumaa	Darbee darbee	Yeroo hedduu	Yeroo hunda
1	Afaan goguu akka danda'u hubannee turre				
2	Rakkoon sirna hargansuu na mudatee ture.(fakkeegnaaf dafani dafani hafuura baasuu,sochiin qaamaa bakka hin jirretti qilleensa gahaa dhabuu..)				
3	Hollachiisaan naqabee ture.(fakkeegnaaf hollachuu harkaa.).				
4	Haalichi na dhphisee ture.				
5	Sodhaan natti dhaga'meeture.				
6	Sochiin ga'				
7	Sababa tokko malee sodaan natti dhaga'ama ture.				
	Safartuu Muka'inaa				
8	Ani gonkumaa miira gaariin natti hin dhaga'amne.				
9	kaka'umsa hojii hojjechuu hin qabu.				
10	Wantin dharra'ee (hawwiin) eegu akkan hinqabnetu natti dhaga'ame.				
11	Miira gadaantumattu natti dhaga;ame				
12	Wanta kamiifuu dharraa/hawwii hinqabu.				
13	Akka namoota biro ulfina dhabuu kootu natti dhaga'ame.				
14.	Jireegna hiika hinqabnetu natti dhaga'ama.				
	Safartuu dhphina sammuu				
15	Miira gadaantummatu natti dhaga'ame.				
16	Haalota jiraniif humnaa ol dandamachuu yaaleen ture.				
17	Humna baayyee gudda akkan fayyadamaa jirutu natti dhaga'ama				

18	Nanaare				
19	Of-gadhiisee jiraachuun rakkoo natti ta'ee ture				
20	Wantootaa ani gochuu qabu tokko akka ani hin goonef haalota narakkisaa turan bira obsaan darbuu hin dandeenye..				
21	Irra chaalaa miira kakaaftuu ta'uu kootu natti dhaga'ame.				

Kutaa 3ffaa

Lakk. addaa	Gaaffilee	Deebii	Mallattoo
1	Saala ijoollee/daa'immanii	1 .Dhiira 2.Dubara	
2	Umurii ijoollee ji'aa fi Waggan	_____	
3	Lakkofsa ijoollee mana keessa jiraatanii	-----	
4	Dhibichi bifa haaran deebi'ee ka'eeraa?	1. Eeyyee 2. Lakkii	
5	Gosa kaanserii	1. Kan dhiigaa 2. Liinfoomaa 3. Kan.sammuu 4. Kan garaa 5. Kan Lafee.fi mitikaa/buusaa 6. Kan ijaa fi 7. Kan biro-----	

Kutaa 4ffaa. Gaaffii tilmama amalaa/haala namootaa

Lakk. addaa	Gaaffilee	Deebii	Mallattoo
1	Bakka namootini bashannanitti argamtanii beektu?	1. Eeyyee 2. Lakkii	
2	Abbootii amantaa waliin yeroo baayyee walargitanii beektuu?	1. Eeyyee 2. Lakkii	

Kutaa 5ffaa-Gaaffilee kenninsa tajaajilaa waliin walqabatan

Lakk. addaa	Gaaffii	Deebii	Mallattoo
1	Waldhaansa fayyaa kaanseriitiif ogeessa fayyaa irraa raga argattaniittuu?	1. Eeyyee 2. Lakkii	
2	Yeroo waldhaansaa	Ji'oota / Waggoota	
3	Gosa Waldhaansaa	1. Keemootiraapii 2. Baqaqsanii Yaaluu 3. Lammanuu	

Kutaa 6ffaa- Giddugala waldhaansa fayyaa jimmaatti dandeettii dhukkubsachiisuu maatii daa'imman kaanseriin qabamanii.

Lakk. addaa	Gaaffilee	Gonkumaa	Darbee darbee	Al-tokko tokko dhugaa dha	Yeroo baayyee	Yeroo hunda
1	Jijjirama dhufu waliin walbaruu kan danda'u.					
2	Icciiitii kan eegee fi Walitti dhufeenya amanamaa ta'e					
3	Al tokko tokko carraan ykn rabbi nama gargaaruu danda'a					
4	Wanta dhufuu danda'u hunda dandammachuu ni danda'u					
5	Fiixaan bayyiinsi darbe qormaata haaraa dhufuu danda'uuf ofitti amanummaa namaaf kenna.					
6	Haalota jiran akum salphaatti/laayyootti ilaaluu					
7	Dhiphina dandammachuu danda'uun nama cimisa					
8	Dhukkubsachuu ykn rakkinaan booda gara duubaa deebi'anii yaaduu					
9	Hallonni/antoonni sababa addaddatiin uumamu					
10	Haalli rakkisaan kamiyyuu yoo uumame carraqqii barbaachisu nangodha.					
11	Kaayyoo keessan galmaan ga'uu ni dandeessu					
12	Haalonni jiran waan abdiin hinqabne yoo ta'an illee ani abdiin hinkutu					
13	Gargaarsa argachuuf eessa dhaqamuu akka qabu nanbeeka.					
14	Dhiibbaa rakkisaa kamiin keessa iyyuu yoon jiraadhe sirritti yaaduu nan danda'a					
15	Rakkoo hiikuuf adda duree ta'u					
16	Fiitan bayiinsa dhabutti ykn kufatii kootti dafeen abdiin kuta					

17	Mataa keessan akka nama cimaa tokkotti of ilaaltu					
18	Murtee fudhatama hin qabne ykn murtee ciccimaa ni murtessu					
19	Miira namatti hintolle kamiinuu keessummeessuu nan danda'a					
20	Yeroo rakkinnaa tarkaanfii fudhachuu ni danda'u					
21	Kaayyoo guddaa qabdu					
22	Jireenya keessan akka barbaaddanitti geggeessitu					
23	Qormaata/bu'aa ba'ii jireenyaa ni jallatuGalma keessan fiixaan baasuuf ni carraxxu					
24	Galma keessan fiixaan baasuuf carraaqqii ni gootu					
25	Fiixaan bayiinsa keessanitti ni boonu					