

Research Thesis

**IMPACT OF CAREGIVING BURDEN ON MENTAL AND PHYSICAL
HEALTH OF PRIMARY CAREGIVERS OF HEMATOLOGICAL
CANCER PATIENTS: MODERATING ROLE OF SPIRITUAL HEALTH**



Researcher

MUHAMMAD AFZAL JAMAL

Reg No. 512-FSS/MSCP/F23

Supervisor

Dr. SABIR ZAMAN

Assistant Professor

Department of Psychology

Faculty of Social Sciences

International Islamic University, Islamabad

2025

**IMPACT OF CAREGIVING BURDEN ON MENTAL AND PHYSICAL
HEALTH OF PRIMARY CAREGIVERS OF HEMATOLOGICAL
CANCER PATIENTS: MODERATING ROLE OF SPIRITUAL HEALTH**

Submitted to the Department of Psychology (Male Campus), International
Islamic University Islamabad in the partial fulfillment of the requirements

for the award of degree of

MS

IN

CLINICAL PSYCHOLOGY

By

MUHAMMAD AFZAL JAMAL

512-FSS/MSCP/F23

Department of Psychology

Faculty of Social Sciences

International Islamic University, Islamabad

2025

**"IMPACT OF CAREGIVING BURDEN ON MENTAL AND PHYSICAL HEALTH
OF PRIMARY CAREGIVERS OF HEMATOLOGICAL CANCER PATIENTS:
MODERATING ROLE OF SPIRITUAL HEALTH"**

By

Muhammad Azal Jamal

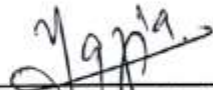
Registration No. 512-FSS/MSCP/F23

Thesis Approved

By



Dr. Sabir Zaman
Supervisor



Dr. Nazia Iqbal
Internal Examiner



Dr. Noman Aftab
External Examiner



Assistant to Dean
Department of Psychology



Dean Faculty of Social Sciences

**INTERNATIONAL ISLAMIC UNIVERSITY, ISLAMABAD
(PAKISTAN)**

DECLARATION

I, Mr. Muhammad Afzal Jamal, Registration No. 512-FSS/MSCP/F23 student of MS in Clinical Psychology, session 2023-2025, hereby declare that the matter printed in the thesis titled: 'IMPACT OF CAREGIVING BURDEN ON MENTAL AND PHYSICAL HEALTH OF PRIMARY CAREGIVERS OF HEMATOLOGICAL CANCER PATIENTS: MODERATING ROLE OF SPIRITUAL HEALTH` is my own work and has not been printed, published and submitted as research work, thesis or publication in any form in any University, Research Institution etc in Pakistan or abroad.

Signatures of Deponent

Dated:

RESEARCH COMPLETION CERTIFICATE

Certified that the research work contained in this thesis titled: 'IMPACT OF CAREGIVING BURDEN ON MENTAL AND PHYSICAL HEALTH OF PRIMARY CAREGIVERS OF HEMATOLOGICAL CANCER PATIENTS: MODERATING ROLE OF SPIRITUAL HEALTH `has been carried out and completed by Mr. Muhammad Afzal Jamal, Registration No: 512-FSS/MSCP/F23 under my supervision.

Date

Supervisor

Dr. Sabir Zaman

Assistant Professor

Department of Psychology

International Islamic University, Islamabad

DEDICATION

All praise and gratitude are due to Almighty Allah (SWT), the Most Beneficent and Merciful, whose divine will and blessings enabled me to reach this significant milestone in my academic journey. It is through His guidance, the heartfelt prayers of my parents, and the unwavering support and dedication of my teachers that I have been able to successfully complete my MS thesis. I would like to dedicate this work to my beloved parents and my supervisor, whose crucial roles and constant support have been instrumental throughout this endeavor. I am deeply thankful to my supervisor, Dr. Sabir Zaman, for his invaluable guidance, insightful feedback, and continuous encouragement throughout the course of this research. His mentorship has been a cornerstone in the completion of this thesis. My sincere appreciation also extends to my peer group for their encouragement, cooperation, and warm wishes, which have kept me motivated. I am especially grateful to my family for their endless support, love, and motivation that carried me through challenging times

Table of Content

	Page No.
List of Tables	i
List of Annexures	ii
Acknowledgement	iii
Abstract	iv
Chapter 1	Introduction
	Caregiving Burden
	Mental Health
	Physical Health
	Spiritual Health
	Literature Review
	Rationale of the study
	Problem Statement
	Significance of the study
	Objectives
	Hypothesis
	Theoretical Framework
	Conceptual Framework
Chapter 2	Method
	Research Design
	Population
	Sample

	Inclusion Criteria	28
	Exclusion Criteria	29
	Operational Definition	29
	Instruments	30
	Caregiver strain Index	30
	General Health Questionnaire-12	30
	SF-12 Health Survey	31
	Spiritual wellbeing scale	32
	Demographics	32
	Procedure	32
	Data Analysis	33
	Ethical Consideration	33
Chapter 3	Results	35
Chapter 4	Discussion	48
	Limitations and Suggestions	52
	Implications	54
	Conclusion	55
	References	56
	Appendices	67

List of Tables

Table No.	Table Heading	Page No.
Table 1	Sociodemographic characteristics of participants	35
Table 2	Psychometric Properties of Study Major Variables	38
Table 3	Correlation of Caregiving Burden with Mental health, Physical Health and Spiritual Health	39
Table 4	Simple linear regression analysis demonstrating effect of Caregiving Burden on the prediction of Mental Health among caregivers	40
Table 5	Simple linear regression analysis demonstrating effect of Caregiving Burden on the prediction of Physical Health among caregivers	42
Table 6	Moderating effect of spiritual health on caregiving burden and mental health	44
Table 7	Moderating effect of spiritual health on caregiving burden and Physical health	45
Table 8	Multiple linear regression analysis demonstrating effect of Demographics on the prediction of caregiving burden among caregivers	46

List of Annexures

		Page No.
Annexure – A	Informed Consent	67
Annexure – B	Demographic Sheet	68
Annexure – C	Caregiver Strain Index	69
Annexure – D	General Health Questionnaire-12	70
Annexure – E	SF-12 Health Survey	72
Annexure – F	Spiritual Wellbeing Scale	75

ACKNOWLEDGEMENT

I solemnly declare that the current research entitled: ‘IMPACT OF CAREGIVING BURDEN ON MENTAL AND PHYSICAL HEALTH OF PRIMARY CAREGIVERS OF HEMATOLOGICAL CANCER PATIENTS MODERATING ROLE OF SPIRITUAL HEALTH` is my personal work. It is not plagiarized nor copied from any other sources, and that I have followed all the research and ethical protocols. I am submitting this research to Department of Psychology, Faculty of Social Sciences, International Islamic University Islamabad as a partial fulfillment for the award of the degree of MS in Clinical Psychology. I also declare that I will not use this research for my degree program in future.

Abstract

This study aimed to explore the impact of caregiving burden on the mental, physical, and spiritual health of primary caregivers of patients with hematological cancers, such as leukemia, lymphoma, and multiple myeloma. As the number of individuals diagnosed with blood malignancies increases, understanding how caregiving affects caregivers' well-being becomes crucial. The research focused on the complex interplay between caregiving burden, mental health, physical health, and the moderating role of spiritual health. A quantitative cross-sectional survey design was employed, with 70 primary caregivers recruited from oncology departments in Islamabad and Rawalpindi. The study utilized validated scales, including the Caregiver Strain Index, General Health Questionnaire-12, SF-12 Health Survey, and Spiritual Well-Being Scale, to assess caregiving burden, health outcomes, and spiritual health. The objectives were to examine the relationship between caregiving burden and health, and how spiritual health moderates these effects. The results revealed significant negative correlations between caregiver stress and both mental and physical health. Specifically, caregiver stress was negatively associated with both mental health and physical health, indicating that higher levels of stress were related to poorer mental and physical well-being among caregivers. Results also revealed that caregiving burden significantly predicted both mental health and physical health among caregivers. No moderating role of spiritual health was found between the relationships of caregiving burden, mental and physical health. Similarly the results revealed that demographic variables, including age, gender, marital status, education level, socioeconomic status, employment status, and relationship to the care recipient, did not significantly predict caregiving burden among caregivers of

hematological cancer patients. These results underscore the need for routine assessment of caregiver stress and the integration of psychological, physical, and social support interventions within cancer care. The absence of a moderating effect of spiritual health suggests that while spirituality may aid coping, it alone does not mitigate the negative impact of caregiving burden, highlighting the importance of holistic, multidisciplinary caregiver support programs.

Keywords: Caregiving Burden, Mental Health, Physical Health, Spiritual Health

INTRODUCTION

Primary caregivers are greatly impacted by the complex interplay of emotional, physical, and spiritual obstacles that come with providing care, especially for those with hematological cancers. Knowing how caring affects individuals who support patients with blood malignancies including leukemia, lymphoma, and multiple myeloma has grown more important as the number of patients with these diagnoses keeps rising. Throughout the course of treatment, primary caregivers frequently take on a variety of responsibilities, including not just practical help but also advocacy and emotional support. Even though it frequently results from love and dedication, this extensive participation can have serious negative effects, such as elevated stress, anxiety, and melancholy.

According to research, long-term exposure to the emotional and physical strains of caregiving increases the risk of negative mental health consequences for caregivers.

Caregiving Burden

According to Vitaliano et al. (2002), the duties of providing care can result in long-term stress, which can then negatively impact the physical health of caregivers by increasing physical ailments, sleep problems, and exhaustion. Caregiving burden, as defined by Zarit et al. (1986), is the "psychological, emotional, and physical stress experienced by caregivers as they cope with the demands of providing care." Feelings of powerlessness, worry, sadness, and social isolation are some of the ways that this stress might show up.

Caregiving burden has been conceptualized in the literature as a multidimensional, partly subjective experience that captures the physical, emotional, social, and financial strains that arise when an (usually unpaid) family member provides care for a relative with chronic or life-threatening illness. Early measurement work framed burden as caregivers' feelings of strain and overload, a subjective reaction to caregiving demands (Zarit et al., 1980). Subsequent concept analyses and reviews emphasize that burden also includes objective components such as time spent, tasks performed, care recipient functional status as well as subjective appraisals like caregiver perceptions of stress, entrapment, and loss of self, so most contemporary definitions treat burden as the interaction between care demands and caregiver resources/responses rather than a single symptom (Liu, 2020).

Clinical reviews described caregiver burden as the extent to which caregiving has had an adverse effect on the emotional, social, financial, physical, spiritual functioning of the caregiver capturing these domains for research and practice (Adelman et al., 2014).

Cancer-care research especially work on hematologic malignancies and hematopoietic stem-cell transplant caregiving has echoed the multidimensional framing, documenting high objective demands (complex symptom management, frequent clinic/hospital visits) together with marked subjective distress and reduced quality of life, which researchers explicitly label as elevated caregiver burden (Bevans & Sternberg, 2012). In short, prior studies define caregiving burden as a multidimensional construct composed of objective tasks and subjective strain whose severity depends on care demands, caregiver appraisal, social supports, and resources (Bevans & Sternberg, 2012).

Pearlin et al. (1990) proposed a stress process model that described caregiving burden as the outcome of an ongoing stress process influenced by contextual factors, primary stressors (such as the patient's symptoms and dependency), secondary stressors (such as role conflict and financial strain), and the caregiver's coping resources. This model underscored that burden is not merely a reaction to the quantity of care provided but also a subjective appraisal of how caregiving demands exceed personal and social resources.

Subsequent studies have expanded the conceptualization of caregiving burden to include objective burden, referring to the tangible, observable aspects of caregiving such as hours spent on care, medical tasks performed, and disruptions to employment or social life, and subjective burden, which reflects the psychological and emotional impact of caregiving (Kim et al., 2020). Research on caregivers of cancer patients, including those caring for individuals with hematologic malignancies, has consistently shown that the burden is particularly intense due to the unpredictable disease trajectory, frequent hospitalizations, and complex medical procedures involved in treatment (Milbury et al., 2017). These caregivers often report chronic fatigue, sleep disturbances, depressive symptoms, and anxiety, which together contribute to both mental and physical health deterioration (Northouse et al., 2012).

Furthermore, caregiving burden has been defined as a dynamic construct, evolving across the illness continuum, from diagnosis through treatment, remission, or end-of-life care (Adelman et al., 2014). Researchers have highlighted that caregiving burden is not solely a reflection of patient needs but also shaped by interpersonal dynamics, caregiver coping styles, and social support systems (Reinhard et al., 2020).

In studies focusing on caregivers of hematological cancer patients, burden is often described as an accumulation of prolonged emotional strain and physical exhaustion due to extended treatment regimens, emotional uncertainty, and witnessing patient suffering (Posluszny et al., 2017). Thus, across multiple disciplines, caregiving burden is defined as a multidimensional and cumulative stress response that arises when caregiving demands chronically exceed available psychological, social, and material resources ultimately compromising the caregiver's overall well-being (Liu, 2020)

Milbury et al. (2017) noted that in hematologic cancer caregiving, the sustained exposure to emotional strain, combined with uncertainty about prognosis, significantly contributes to chronic psychological burden and deteriorating physical health. Likewise, Sklenarova et al. (2015) reported that over 40% of cancer caregivers met clinical criteria for high burden, characterized by emotional exhaustion, financial stress, and diminished personal well-being, underscoring the profound impact of caregiving on mental and physical health.

Further studies have expanded the definition to include social and existential dimensions of burden. Cheng et al. (2019) described caregiving burden as a “comprehensive stress response” influenced not only by caregiving intensity but also by caregivers' appraisal of meaning and purpose in their role. Their findings indicated that caregivers with limited coping resources and low perceived meaning in caregiving exhibited higher subjective burden. Similarly, Mosher et al. (2013) found that caregivers' burden was exacerbated by social isolation and lack of institutional support, particularly in hematologic malignancies requiring prolonged treatment.

Papastavrou et al. (2014) highlighted that cultural values related to family obligation and collectivism significantly influence how caregivers perceive and report burden, suggesting that definitions of burden must account for cultural norms and expectations. Geng et al. (2018), studying caregivers of leukemia patients in China, reported that filial piety and family cohesion moderated the relationship between caregiving demands and perceived burden, reinforcing the multidimensional and context-dependent nature of the construct. In sum, caregiving burden across studies is consistently defined as a complex, multidimensional experience encompassing the interaction of physical strain, emotional exhaustion, financial difficulty, social role disruption, and existential distress that results when caregiving responsibilities exceed an individual's internal and external coping resources

Mental Health

A state of well-being where individuals recognize and utilize their potential, effectively manage everyday stresses, work productively and efficiently, and contribute positively to their community is how the World Health Organization defines mental health (WHO, 2004) . According to Keyes' (2002) dual-continua model, mental health is a state of "flourishing," which is marked by psychological functioning, good emotions, and social integration, rather than only the absence of mental illness.

Mental health constitutes a fundamental aspect of human existence, without which leading a balanced and fulfilling life becomes nearly impossible. The World Health Organization (WHO, 2004) defines mental health as a state of well-being in which an individual realizes their potential, is able to cope with normal life stresses, can work

productively, and contributes meaningfully to their community. This definition reflects a positive orientation toward psychological well-being, emphasizing optimal functioning and the absence of mental disorders. Within the athletic context, the significance of positive mental health is magnified, as it directly influences both performance and recovery from injuries.

According to Rice et al. (2016), mental health among athletes should be understood as a continuum or spectrum rather than a fixed state defined solely by the presence or absence of mental illness. This spectrum encompasses varying degrees of positive and negative mental states, recognizing that fluctuations in well-being are natural and can impact performance. Schinke et al. (2017) further conceptualized this continuum, describing mental health in athletes as ranging from an optimal “flow state,” characterized by peak performance and engagement, to lower states marked by psychological distress or disorder.

Importantly, experiencing mental health challenges does not necessarily imply the presence of a clinically diagnosed disorder. Athletes often face subclinical issues such as stress, anxiety, or mild depressive symptoms that can significantly hinder both athletic and academic performance (Bird, Chow, & Cooper, 2018). These difficulties are frequently driven by perfectionism, performance pressures, and the constant struggle to balance personal and professional expectations. Although such issues may not meet diagnostic criteria, they nonetheless exert substantial negative effects on well-being and functioning.

Historically, mental health concerns among athletes have mirrored those seen in the general population, yet cultural stigmas within sports have made their acknowledgment particularly challenging. Admitting to mental health struggles has long been perceived as a sign of weakness, discouraging athletes from seeking professional help (Bauman, 2015). Fear of judgment, financial repercussions, and social stigma further reinforce this silence. The entrenched cultural expectation to remain “strong” and resilient exacerbates these pressures, often leading to the underreporting of symptoms. Although awareness of mental health in sports has improved considerably in recent years, Bauman (2015) notes that ongoing cultural transformation is still needed to normalize mental health discussions and encourage help-seeking behaviors.

To better understand the factors influencing an athlete’s willingness to seek psychological support, Bird, Chow, and Cooper (2018) applied the Health Belief Model (HBM). This model highlights how perceptions of vulnerability, severity of symptoms, perceived benefits and barriers to treatment, and external cues such as social support collectively determine help-seeking behavior. Athletes who perceive their symptoms as manageable or who fear negative career consequences may be less likely to seek treatment despite recognizing their distress.

Mental health concerns in competitive athletes span across all levels of participation, from amateurs to elite professionals. Those engaged in high-intensity competition are particularly vulnerable to disorders such as depression, anxiety, panic attacks, eating disorders, and substance abuse (Gucciardi et al., 2016). These conditions not only impair athletic performance but also influence physical health, as mental and physical well-being are deeply interconnected (Reardon et al., 2019).

Furthermore, mental health is not solely defined by the absence of psychological distress but also encompasses positive constructs such as resilience, self-esteem, emotional stability, and effective interpersonal functioning (Ryan et al., 2018). Recognizing both the negative and positive dimensions of mental health allows for a more comprehensive understanding of psychological well-being in athletes. Conceptualizing mental health as a dynamic spectrum promotes a holistic approach to mental health care, enabling early intervention and ongoing support that enhances both athletic performance and overall life satisfaction (Schinke et al., 2017).

From a clinical perspective, researchers such as Kessler et al. (2005) and Patel et al. (2018) highlighted that mental health involves not only the absence of psychiatric conditions such as depression or anxiety but also the maintenance of emotional regulation, resilience, and cognitive functioning that enable individuals to adapt to environmental demands. More recent studies view mental health as a holistic construct shaped by psychological, biological, social, and spiritual dimensions (Westerhof & Keyes, 2010). The biopsychosocial model posits that mental health reflects the interplay of genetic predispositions, emotional regulation, interpersonal relationships, and environmental supports (Kurban, 2016).

Physical Health

A person's functional ability to carry out everyday tasks can also be used to determine their physical health. Physical health includes "body functions and structures" and how they affect a person's capacity to engage in activities of daily living, according to the International Classification of Functioning, Disability, and Health (ICF).

According to some experts, physical health is defined as total well-being, which encompasses elements including lifestyle decisions, diet, and physical fitness. The American College of Sports Medicine (ACSM), for example, stresses that maintaining a healthy body weight, getting enough nutrition, and participating in regular physical activity are all components of physical health (Garber et al., 2011).

Physical health has been comprehensively defined in previous research as a multifaceted construct encompassing the overall condition and functional efficiency of the body, extending beyond the mere absence of disease or infirmity. According to the World Health Organization (1946), health represents a state of complete physical, mental, and social well-being, establishing a foundational framework for defining physical health in caregiving research. In the context of caregiving studies, physical health has been operationalized through subjective, objective, and biological dimensions. Subjectively, researchers have measured caregivers' perceived physical functioning, bodily pain, fatigue, and vitality using different validated instruments which assess functional limitations and role impairments associated with physical strain (Ware & Sherbourne, 1992).

Objectively, physical health has been assessed through the prevalence of chronic conditions, the occurrence of new illnesses, and the frequency of healthcare utilization (Raina et al., 2004). Additionally, biological indicators, such as alterations in cortisol levels, immune dysregulation, and sleep quality, have been used to capture physiological manifestations of caregiving stress (Ross et al., 2013).

Studies consistently indicate that high caregiving burden is linked to deteriorations in caregiver's physical health, evidenced by reduced functional ability, increased somatic complaints, and elevated physiological stress markers (Wilson-Genderson et al., 2023). Therefore, physical health in caregiving literature is broadly defined as a multidimensional state reflecting both perceived and measurable aspects of bodily functioning, vulnerability to illness, and capacity to maintain daily physical roles under stress.

Physical health has been broadly conceptualized in caregiving research as a multidimensional construct encompassing bodily functioning, physical symptoms, illness burden, and engagement in health-promoting behaviors. It is not limited to the absence of disease but includes an individual's capacity to perform daily physical roles, maintain energy, and recover from physical stressors. In caregiving contexts, physical health has often been defined through indicators such as fatigue, sleep disturbance, pain, and chronic disease prevalence, reflecting the physiological toll caregiving imposes on the body (Bishop et al., 2015).

In a study examining caregivers of oncology patients, physical health included domains such as general health, fatigue, physical functioning, and vitality, assessed through self-report instruments capturing perceived well-being and symptom burden (Northouse et al., 2012). Similarly, in a recent study of spousal caregivers of individuals with dementia, physical health was measured through fatigue, pain interference, sleep quality, number of chronic illnesses, and engagement in health-promoting behaviors like exercise and nutrition (Schulz et al., 2024).

Objective indices of physical health have also been incorporated into caregiving research; for instance, Fredman et al. (2015) operationalized physical health in terms of performance-based measures such as grip strength, timed walking, and chair stands, linking caregiving intensity with measurable functional decline. Population-based studies have taken a broader approach, defining caregivers' physical health through self-rated health, symptom reports, and the number of diagnosed medical conditions, as demonstrated in a Taiwanese sample by Lee et al. (2009), where caregiving strain was significantly correlated with poorer self-perceived health and higher disease prevalence.

Moreover, longitudinal research has shown that chronic caregiving stress contributes to systemic physiological dysregulation particularly inflammation and immune impairment leading to gradual declines in functional health (Verkaik et al., 2025). Collectively, these studies conceptualize physical health as a dynamic, multifaceted construct influenced by subjective experiences, behavioral choices, and biological processes, capturing both the immediate and cumulative effects of caregiving on the body. This multi-layered definition is particularly useful when studying primary caregivers of patients with complex illnesses such as haematological cancers, because it allows one to capture both the everyday bodily toll of caregiving and the more latent consequences.

Spiritual health

The sensation of belonging to something more than oneself whether it is a higher power, the natural world, or other people is how many studies describe spiritual wellness. The World Health Organization (WHO) (2014) states that spiritual health, which is

defined as a person's capacity to discover balance and connection both within themselves and with their surroundings, is essential to general health and well-being. Many people consider spiritual health to be a part of holistic health, which encompasses social, mental, and physical aspects. Spiritual health, according to the National Center for Complementary and Integrative Health (NCCIH), is a state that encompasses a person's ethics, values, and beliefs as well as how these aspects affect their general well-being.

Spiritual health in empirical research is most commonly conceptualized as a multidimensional construct that captures a An individual's sense of purpose or significance, peace, faith, and connectedness (to self, others, nature or the transcendent), and it is treated as both a resource for coping and a domain of well-being that can be measured separately from but related to psychological and physical health. Early, widely cited measurement work framed spiritual well-being around two core dimensions, meaning/peace and faith (Peterman et al., 2002).

Clinical and nursing scholarship most influentially work by Puchalski and colleagues frames spiritual health as part of “whole-person” care: an aspect of health that clinicians should assess because it affects coping, decision-making and quality of life in serious illness (Puchalski., 2014).

Spiritual health has been broadly conceptualized in research as a multidimensional component of overall well-being that encompasses a person's sense of meaning, purpose, connectedness, and transcendence. It involves the individual's relationship with self, others, nature, and, for some, a higher power, serving as a source of strength and coping in times of stress or illness (Puchalski et al., 2014). Scholars

emphasize that spirituality is not synonymous with religiosity; rather, it extends beyond religious belief systems to include existential elements such as the search for meaning, inner peace, and life purpose (Paloutzian & Ellison, 1982).

Fisher's (2011) Four-Domain Model of Spiritual Health conceptualizes it through personal, communal, environmental, and transcendental domains, reflecting interconnected relationships that contribute to holistic well-being. Moreover, concept analyses of spiritual health have identified core attributes such as meaning in life, connectedness, transcendence, and harmony, while acknowledging cultural and contextual differences in interpretation (Ghaderi et al., 2018).

Increasingly, public health perspectives recognize spiritual health as an essential dimension of holistic health complementing physical, mental, and social aspects because spiritual resources have been shown to enhance coping capacity, resilience, and quality of life among patients and caregivers (Ramezani et al., 2014).

Spiritual health has been widely discussed in the literature as a dynamic and integral dimension of human well-being that involves the harmonious interaction between an individual's inner life and their external environment. According to the World Health Organization (WHO, 1984), spiritual health constitutes a fundamental component of holistic health, alongside physical, mental, and social dimensions, encompassing values, beliefs, and a sense of purpose that guide one's life. Moberg (2010) described spiritual health as the expression of one's total well-being in relation to ultimate meaning and purpose, highlighting its role in fostering personal integration, hope, and resilience.

Similarly, Hawks (2004) defined spiritual health as the capacity to find and integrate meaning and purpose in life through a sense of connection with oneself, others, nature, art, music, literature, or a higher power. underscoring its multifaceted nature.

Research studies further suggest that spiritual health serves as a coping resource in times of adversity, influencing emotional stability and psychological adaptation among individuals facing chronic illness or caregiving responsibilities (Tiew & Creedy, 2012). Collectively, these definitions reflect a consensus that spiritual health transcends religious identity and reflects a universal human need for meaning, connectedness, and transcendence, which contributes substantially to overall quality of life.

Literature Review

A study by Johanson et al. (2004) indicates that Low-grade fatigue, moderate worry, and a immense weight of care were encountered by primary caregivers of breast cancer patients who underwent mastectomy and chemotherapy and were planned for autologous BMT. The important intercorrelations between every variable observed, with the exception of subjective burden and sensory exhaustion, illustrating the intricacy of the symptoms experienced by the primary caregiver.

Similarly a study by Anum and Dasti (2015) findings suggested a negative relationship between psychological well-being and caregiver load. Additionally, there was a strong and positive correlation between psychological well-being and the six spiritual dimensions. Data analysis also showed that the relationship between the psychological well-being and the caregiver burden was only partially mediated by two spirituality domains: self-discipline and meanness-generosity. The participants disclosed that their caregiving duties significantly contributed to their elevated levels of stress and anxiety, which in turn impacted their mental and emotional well-being.

Likewise a study by Spatuzzi et al. (2018) shows caregivers with high levels of spiritual well-being experience a better quality of life and less stress. Given these correlations, healthcare providers should pay closer attention to spiritual resources available to family cancer caregivers both at the time of diagnosis and during the course of the disease.

One of the studies identified the moderating role of spiritual health where spiritual mindfulness mitigated the impact of spiritual coping on positive reinterpretation and

personal development (Rudaz., 2018). Similarly a study by Wang and Lin., 2016 indicated that Spiritual health may lessen the detrimental effects of cancer on life quality and the desire for an early demise.

Caregivers of hematologic cancer patients often face unique, intense, and sometimes protracted responsibilities: frequent hospital visits, management of complex medication regimens (including transfusions, chemotherapy, HSCT-related care), infection-control concerns, and periods of high symptom burden or relapse. Emerging empirical work documents high levels of distress, poorer sleep, and reduced quality of life in this population (Nielsen et al., 2024). Where compared with caregivers for some solid-tumor patients, hematologic-cancer caregivers often report similar or greater psychological distress and caregiving intensity because of treatment regimens and more volatile disease courses (e.g., relapse after stem cell transplant)

A large meta-analytic literature shows robust associations between caregiving stress/burden and adverse psychological outcomes (depression, anxiety, stress, reduced well-being). Meta-analyses and systematic reviews indicate medium to large pooled effects for depression and perceived stress among caregivers compared with non-caregivers and strong correlations between caregiving stressors (behavioral problems, intensity) and caregiver depressive symptoms (Pinquart & Sörensen, 2007).

In cancer-caregiver specific samples, cross-sectional and longitudinal studies consistently find that higher subjective burden predicts higher depressive symptoms, anxiety, and traumatic stress reactions, and lower quality of life. National reporting and

clinical guidance also note under-screening of caregiver distress despite high prevalence (NCI, 2023).

Mechanistically, subjective appraisal and coping styles account for much of the variance: caregivers who appraise demands as overwhelming and who use avoidant coping report the worst mental health, while problem-focused coping and effective help-seeking are protective (Pinquart & Sörensen, 2003)

Although psychological consequences have been studied most, a substantial body of work links caregiving burden to worse physical health outcomes (sleep disturbance, somatic symptoms, immune dysregulation, chronic disease exacerbation). Meta-analytic evidence points to caregiving as associated with poorer physical health, with stronger negative effects among caregivers experiencing psychological distress and for certain subgroups (older caregivers, lower SES, less social support) (Pinquart & Sörensen, 2007). Importantly, depressive symptoms and chronic stress appear to mediate links between caregiving burden and physical outcomes, through pathways such as poor sleep, inflammation, unhealthy behaviors (reduced exercise, worse diet), and reduced healthcare engagement. In cancer caregiver populations these physical consequences are observed as higher somatic complaints and poorer self-rated health.

Spiritual health is defined variably across studies but commonly includes: (1) existential components meaning, peace, purpose; and (2) religious components faith, religious practices, and religious coping. Studies Research across caregiving contexts (stroke, dementia, cancer) shows inverse correlations between spiritual health and perceived burden and psychological distress: caregivers with higher spiritual health report

lower burden, greater resilience, and better quality of life (Mirhosseini, 2024). Some work also links spirituality to healthier coping (acceptance, positive reframing) which in turn relates to lower depression and anxiety.

A growing set of cross-sectional and a few longitudinal studies test spiritual health as a moderator of the relationship between caregiving burden and mental/physical outcomes. Findings typically show that, at comparable levels of objective burden, caregivers with higher spiritual well-being experience less psychological distress and report better quality of life than those with low spiritual health (Mirhosseini, 2024; recent reviews). Proposed moderating mechanisms include: (a) enhanced meaning-making and acceptance that reduce the negative appraisal of stressors; (b) increased use of adaptive religious/spiritual coping (prayer, organizational support) that provides social and emotional resources; and (c) promotion of resilience and positive affect that counteract depressive symptoms (Young, 2024). While consistent, most moderator studies are cross-sectional, limiting causal interpretation, and effect sizes vary across samples and measures.

Previous studies also converges on an integrative biopsychosocial model in which caregiving demands (objective stressors) leads to subjective appraisal (burden) which in turn leads to psychological responses (depression, anxiety) resulting in behavioral and biological changes (sleep disruption, inflammation, unhealthy behaviors) which ends up into physical health decline. Spiritual health operates at multiple points in this chain: (a) as a personal resource that shapes appraisal (lower perceived burden for the same objective tasks), (b) as a set of coping behaviors that alter stress responses (increasing adaptive coping, fostering social support through faith communities), and (c) as a buffer

against emotional exhaustion, thereby attenuating downstream physical effects. Moderated mediation models tested in general caregiver samples (and proposed for cancer caregivers) posit that spiritual health moderates the link between burden and psychological distress, which then mediates the association with physical health and quality of life (Cui et al., 2024)

Intervention studies that explicitly target spiritual care or incorporate spiritual components (meaning-centered psychotherapy, spiritually informed counseling, faith-based support groups) report improvements in spiritual health and, in some cases, reductions in perceived burden and depressive symptoms. A growing number of randomized and quasi-experimental trials in various caregiving populations suggest spiritual care can be beneficial, but heterogeneity in interventions, outcomes, and measurement makes synthesis difficult and limits strong conclusions about generalized efficacy and effect sizes (recent reviews and trials 2022–2025). Exercise, psychoeducation, and combined psychosocial interventions also reduce burden and improve health outcomes, sometimes mediated by improved coping and meaning (Cardoso et al., 2025)

Research across multiple populations and care contexts consistently shows a robust, clinically meaningful association between caregiving burden and poorer mental health in informal caregivers. Meta-analytic syntheses indicate that caregivers report substantially higher levels of depressive symptoms and perceived stress than non-caregivers, and that subjective burden (the caregiver's appraisal of strain) is one of the strongest predictors of psychological distress (Pinquart & Sörensen, 2007).

Pinquart and Sörensen's meta-analysis found a large effect for differences in depression between caregivers and noncaregivers ($g \approx .58$), and similarly large effects for perceived stress and reduced subjective well-being. In cancer caregiving samples specifically, prevalence studies and systematic reviews report elevated rates of depression and anxiety among family caregivers, with many studies documenting moderate to severe symptoms in substantial subgroups of caregivers (Moghaddam et al., 2023).

Previous studies distinguishes objective caregiving demands (hours of care, intensity of tasks, patient functional impairment) from subjective burden (emotional/psychological appraisal of caregiving). Although both dimensions relate to mental health, subjective burden and care recipients' behavior problems (e.g., neuropsychiatric symptoms, uncontrolled symptoms) show the strongest and most consistent associations with caregiver depression and anxiety (Pinquart & Sörensen, 2003). In other words, two caregivers performing similar objective tasks can experience very different levels of distress depending on their appraisal, perceived control, and coping resources (Pinquart & Sörensen, 2003).

The transactional stress model posits that caregivers' appraisals of demands (threat vs. challenge) and their coping responses (problem-focused vs. avoidant) determine psychological outcomes. Caregivers who appraise demands as overwhelming and who use avoidant coping styles show higher depressive and anxiety symptoms (Geng et al., 2018).

In caregiver samples where the care recipient experiences frequent symptoms, unpredictable disease trajectories, or behavioral disturbance, caregiver burden and

psychological distress are higher. Cancer caregiving studies show that greater patient symptom burden and treatment complexity predict worse caregiver mental health (Nielsen et al., 2024)

Cancer caregivers, including those caring for patients with hematological malignancies, frequently experience elevated psychiatric morbidity. Systematic reviews of caregivers of cancer patients report substantial pooled prevalence of clinically significant depression and anxiety, and cross-sectional studies in hematologic cancer samples report high burden, poor sleep, and impaired psychological well-being (Nielsen et al., 2024).

Hematologic malignancies often involve intense treatment regimens (e.g., chemotherapy cycles, transfusions, hematopoietic stem cell transplantation) and potentially rapid changes in patient status; these features increase both objective caregiving demands and subjective uncertainty, which in turn raise caregiver distress (Karacan et al., 2021).

Previous research studies consistently demonstrates that greater caregiving burden is associated with poorer physical health among informal caregivers, with effects observed across self-reported health, somatic symptoms, sleep quality, and health-related quality of life (Schulz & Sherwood, 2008). Meta-analytic evidence indicates that although objective indices of caregiving (hours of care, number of tasks) are related to physical outcomes, subjective burden caregivers' appraisal of strain shows the more robust and consistent association with physical morbidity (Pinquart & Sörensen, 2007).

In oncology contexts, systematic reviews and cohort studies report that family caregivers of cancer patients experience higher rates of fatigue, sleep disturbance, pain complaints, and lower overall health-related quality of life compared with non-caregiving peers, and these adverse outcomes are strongly correlated with reported caregiving burden and patient symptom severity (Adashek et al., 2020)

Several, partly overlapping pathways explain how caregiving burden translates into physical health decline. First, behavioral pathways operate when high burden leads to health-compromising behaviors, reduced physical activity, poor diet, irregular medical care, and disrupted sleep that increase risk for chronic conditions and somatic symptoms (Schulz & Sherwood, 2008).

Second, psychosomatic and physiological stress pathways link chronic caregiving stress to dysregulation of the hypothalamic–pituitary–adrenal (HPA) axis and immune function: studies report altered cortisol rhythms, elevated proinflammatory markers, and changes in immune cell profiles among chronically stressed caregivers, suggesting that sustained burden can produce biological wear-and-tear that contributes to poorer physical health over time (Whittaker et al., 2019).

Third, psychological distress (depression, anxiety) functions as both an outcome of burden and a mediator of physical ill-health: depressive symptoms increase somatic complaints and exacerbate sleep problems and unhealthy behaviors, thereby amplifying physical morbidity (Cui et al., 2024).

Evidence from longitudinal and intervention studies further supports the plausibility of these causal pathways. Prospective research indicates that transitions into

family caregiving are followed by increases in self-reported physical symptoms and markers of systemic inflammation, particularly among caregivers who report high subjective burden or low social/resources support (Roth et al., 2020). Intervention studies that reduce objective demands (respite, practical assistance) or target appraisal and coping (psychoeducation, stress management) report improvements in caregiver-reported health, sleep, and sometimes in physiological stress markers, implying that burden reduction can lead to measurable physical-health benefits (O’Riordan et al., 2023).

Caregivers of patients with hematological malignancies may be at particular risk because treatment regimens (frequent hospital visits, transfusions, infection precautions) and disease trajectories (relapse, intensive therapies such as hematopoietic stem cell transplantation) increase both objective workload and uncertainty, yielding higher burden and consequent physical-health consequences; recent studies in hematologic-cancer caregiver samples report impaired sleep, greater fatigue, and reduced quality of life correlated with caregiver burden and patient symptom load (Moghaddam et al., 2023).

Taken together, the literature supports a biopsychosocial model in which caregiving burden promotes behavioral changes, psychological distress, and biological stress responses that jointly erode physical health; this model underscores the need for routine assessment of caregiver burden and integrated interventions (practical support, behavioral health, stress reduction) to mitigate the physical-health toll of caregiving Cui et al., 2024).

Rationale of the study

Although previous research has examined caregiving roles in various chronic conditions, few studies have specifically focused on caregivers of patients with hematological cancers, such as leukemia, lymphoma, and multiple myeloma.

Although the importance of spiritual health for general well-being is becoming more widely acknowledged, less is known about how it specifically affects those who care for patients with hematological malignancies. Research could examine the ways in which spiritual practices and beliefs affect the coping strategies, resilience, and general health outcomes of caregivers.

Problem Statement

Caregivers of patients with hematological cancers experience significant physical and mental health burden. Investigating how spiritual practices influence coping mechanisms, resilience, and overall well-being can provide valuable insights for improving caregiver support and holistic care strategies.

Significance of the study

The study will help us in enhancing caregiver interventions, the formation of effective healthcare policies, and highlighting the importance of spiritual health are essential components in promoting holistic well-being and improving patient outcomes. Caregiver interventions must be supported through comprehensive training and resources to ensure optimal care delivery. The development of thoughtful healthcare policies is crucial in addressing the diverse needs of patients and caregivers alike. Additionally,

recognizing and nurturing spiritual health plays a significant role in fostering emotional resilience and overall healing.

Objectives

1. To assess the relationship between caregiving burden, mental and physical health of primary caregivers with hematological cancer patients
2. To examine the moderating role of spiritual health in the relationship between caregiving burden and mental and physical health

Hypothesis

1. There is a significant negative relationship between caregiving burden and the mental and physical health of primary caregivers
2. Spiritual health moderates the relationship between caregiving burden and mental and physical health, such that higher spiritual health reduces the negative impact of caregiving burden on mental and physical health.
3. Demographic factors significantly predict the caregiving burden and its impact on health outcomes

Theoretical Framework

Stress Process Model

The present study is theoretically grounded in the Stress Process Model, developed by Leonard I. Pearlin, which conceptualizes caregiving as a dynamic and ongoing stress process rather than a single stressful event. According to this model, caregiving responsibilities associated with chronic and life-threatening illnesses, such as

hematological cancers, function as primary stressors that place sustained psychological and physical demands on caregivers. These stressors, when prolonged, can lead to adverse mental health outcomes, including depression, anxiety, and emotional distress, as well as physical health problems such as fatigue, somatic complaints, and reduced overall well-being (Pearlin et al., 1990)

The Stress Process Model further emphasizes that the impact of caregiving stressors on health outcomes is not uniform across individuals, but is influenced by the availability of personal and psychosocial resources that may alter stress appraisal and coping responses. In this context, spiritual health is conceptualized as a significant moderating resource that may buffer the negative effects of caregiving burden on caregivers' mental and physical health. Spiritual health may facilitate adaptive coping by fostering meaning-making, hope, acceptance, and a sense of purpose in the caregiving role, thereby reducing emotional distress and enhancing psychological resilience (Pearlin et al., 1990)

Consistent with the Stress Process Model, the present study proposes that higher levels of caregiving burden will be associated with poorer mental and physical health outcomes among primary caregivers of hematological cancer patients. However, this relationship is expected to be attenuated among caregivers with higher levels of spiritual health, indicating a moderating effect. By incorporating spiritual health into the stress process framework, the study adopts a holistic perspective that acknowledges the role of cultural and spiritual resources in shaping caregivers' responses to chronic caregiving stress, particularly within collectivistic and religious contexts (Pearlin et al., 1990)

Conceptual Framework

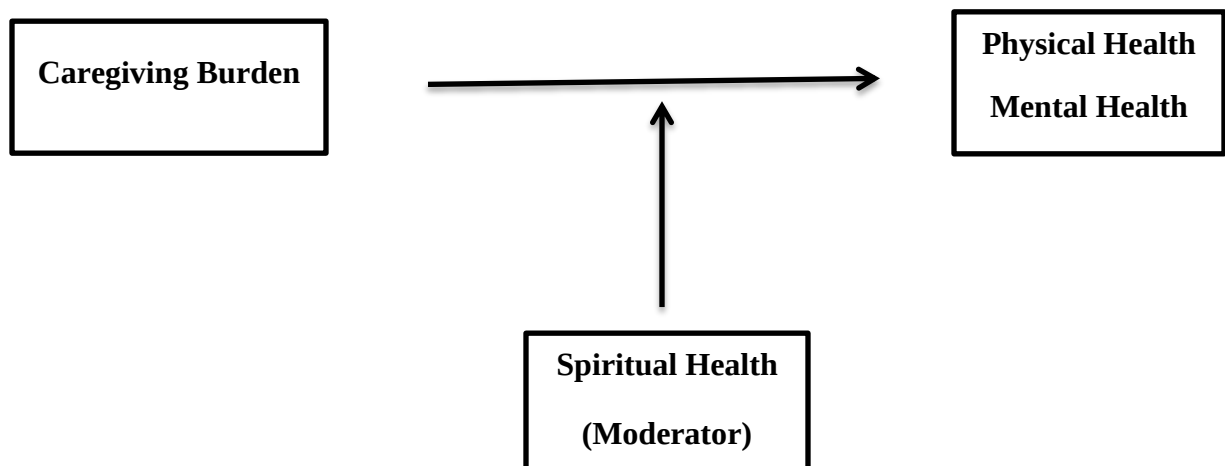


Figure: Conceptual framework depicting relationship among variables

METHOD

Research Design

The research study was a quantitative cross-sectional survey design that examined the influence of caregiving burden on mental and physical health with moderating role of spiritual health

Population

The target population consisted of primary caregivers who can be defined as someone who is largely in charge of caring for a person with a medical condition, especially when that person is unable to carry out daily tasks. Caregivers typically include family member, partner or a friend. For our study we included caregivers at oncology departments of different hospitals of Islamabad and Rawalpindi

Sample

Purposive technique was used to choose the sample, allowing participants to be included based on their availability, willingness, and particular qualities to take part in the research. It is significant to understand that the results might not apply to the whole population. Sample size consisted of 70 primary caregivers.

Inclusion criteria

1. Participants having a minimum age of 20

2. Immediate family members of the patient. This may include spouses, children and siblings
3. Participants are dealing with patients having hematological cancers

Exclusion Criteria

1. Participants on psychiatric medications
2. Participant have an age less than 20 years

Operational Definition

Caregiving burden

It is defined as evaluation by caregivers on how providing care has affected their lives, including how it has affected their physical and mental well-being and disrupted their social lives (Zarit et al., 1980)

Mental health

According to the World Health Organization, mental health is a state of well-being in which individuals recognize their potential, manage the normal stresses of life, work productively and effectively, and contribute positively to their community (WHO, 2004)

Physical health

It is the capacity of an individual to carry out instrumental and everyday living activities, which provide information about their physical well-being (katz et al., 1963)

Spiritual health

It involves or evaluates two main aspects: religious well-being (the person's relationship with God or a higher power) and existential well-being (a feeling of meaning and purpose in life) (Elkins, D. N., et al. (1988)

Instruments

Caregiver Strain Index

The Caregiver Strain Index (CSI) was developed by Robinson in 1983 to assess the level of strain experienced by individuals providing care to elderly, chronically ill, or disabled persons. The scale consists of 13 items, each addressing a potential source of caregiver stress such as financial strain, physical health, sleep disturbance, emotional adjustment, and social constraints. Respondents indicate whether each item applies to their situation using a dichotomous response format—answered as “Yes” (scored 1) or “No” (scored 0). The total score ranges from 0 to 13, with higher scores reflecting greater levels of caregiver strain. The CSI has exhibited good internal consistency, with a noted Cronbach’s alpha reliability of approximately 0.86, indicating that it is a reliable and valid tool for screening caregiver burden in both clinical and research settings.

General Health Questionnaire-12

The General Health Questionnaire-12 (GHQ-12) was developed by David Goldberg and Paul Williams in 1988 as a short screening instrument to detect general psychological distress and potential psychiatric disorders in the community or clinical settings. The GHQ-12 consists of 12 items that assess symptoms such as anxiety,

depression, social dysfunction, and loss of confidence over the past few weeks. Each item is rated using a 4-point Likert-type response format, typically ranging from “Better than usual” to “Much less than usual” or similar options, depending on the version used. Scoring can be done either bimodally (0-0-1-1) or on a Likert scale (0-1-2-3), with higher scores indicating poorer mental health. The GHQ-12 has shown excellent internal consistency across different populations, with reported Cronbach’s alpha reliability values spanning from 0.82 to 0.90, making it a widely used and psychometrically sound measure of general mental well-being.

SF-12 Health survey

The SF-12 Health Survey was developed by John E. Ware, Jr., and colleagues in 1996 as a shorter alternative to the original 36-item Short Form Health Survey (SF-36). It is designed to measure overall health-related quality of life in both clinical and general populations. The SF-12 consists of 12 items that represent eight key health areas: physical functioning, role limitations due to physical or emotional problems, bodily pain, general health, vitality, social functioning, and mental health. Responses are given on Likert-type scales that vary depending on the question—for example, some items use a 3-point scale (“Yes, limited a lot” to “No, not limited at all”), while others use a 5- or 6-point scale (“Excellent” to “Poor” or “All of the time” to “None of the time”). The survey yields two composite scores: the Physical Component Summary (PCS) and the Mental Component Summary (MCS). The SF-12 has exhibited good internal consistency, with reported Cronbach’s alpha reliability values typically ranging from 0.70 to 0.89 across different populations, indicating it is a reliable and efficient tool for assessing overall physical and mental health status.

Spiritual well-being scale

The Spiritual Well-Being Scale (SWBS) was developed by Craig W. Ellison and Raymond F. Paloutzian in 1982 to measure individual's overall sense of spiritual quality of life and their perception of well-being in relation to both God and life purpose. The scale consists of 20 items, divided into two subscales: the Religious Well-Being (RWB) subscale, which assesses one's relationship with God, and the Existential Well-Being (EWB) subscale, which evaluates one's sense of life purpose and life satisfaction. Responses are given on a 6-point Likert scale, typically ranging from "Strongly Disagree" (1) to "Strongly Agree" (6), with higher scores indicating greater spiritual health. The SWBS has demonstrated strong psychometric properties, with reported Cronbach's alpha reliability coefficients ranging from 0.89 to 0.94 for the total scale and subscales, confirming its reliability and validity as a measure of spiritual and existential health

.Demographics

Different additional demographic variables such as age, gender, educational background, marital status, socio-economic status, employment status and relationship to caregivers of participants were incorporated. For the purpose of caregivers, family relations were focused. Spouses, children (primary caregivers) and siblings (secondary caregivers) were included.

Procedure

Participants at different oncology departments of multiple hospitals were approached by the researchers after the permission was granted by the relevant

authorities. A brief introduction was given about the research and its significance after which an informed consent was acquired from the participants. Following informed consent data was gathered from the participants and any uncertainty regarding items was cleared the participants were specifically asked to answer with utmost honesty and sincerity and after the completion of the process, they were acknowledged for their assistance and participation. For the purpose of ensuring objectivity and avoidance of any researcher bias, self-rating scales were used

Data Analysis

Quantitative data was analyzed using suitable statistical methods. Distributions and characteristics of the variables in the sample was analyzed using descriptive statistics. The relationship between caregiving burden, mental health and physical health was analyzed using correlation analysis. Determined the strength and direction of the associations by computing correlation coefficients (e.g. Pearson's correlation). Used the PROCESS analysis in to assess whether spiritual health moderates the relationship between caregiving burden ,physical and mental health.

Ethical Consideration

Ethical approval was obtained from Ethical Review Board, Department of Psychology, IIUI and Ethics Committee of International Islamic University, Islamabad. In addition, all necessary information was provided to the participants and written declaration regarding consent was take with a total affirmation and assurance regarding privacy and confidentially to the process and gathered data. To ensure confidentiality, the

data collected was not shared with anyone and the names of the participants were nowhere mentioned in the report of data file.

RESULTS

Table 1*Sociodemographic Characteristics of Participants (N=70)*

Variables	Categories	<i>f</i>	%
Gender			
	Male	31	44.3
	Female	39	55.7
Age			
	20 – 28	37	54.3
	29 – 36	20	28.6
	37 – 45	12	17.1
Marital Status			
	Single	40	57.1
	Married	30	42.9
Educational Background			
	Matriculation	17	24.3

	Intermediate	19	27.1
	Bachelor	20	28.6
	Masters	14	20.0
Socioeconomic Status			
	Upper Class	10	14.3
	Middle Class	51	72.9
	Lower Class	9	12.9
Employment Status	Fully Employed	29	41.4
	Unemployed	1	1.4
	Retired	5	7.1
	Student	35	50.0
Relationship with patient			
	Spouse	12	17.1
	Sibling	42	60.0
	Child	16	22.9

Table 1 presents the sociodemographic characteristics of the participants. The sample consisted of 70 primary caregivers, among whom 44.3% were male (n = 31) and

55.7% were female (n = 39). The majority of the participants (54.3%) were aged between 20 and 28 years (n = 37), followed by those aged 29–36 years (28.6%, n = 20) and 37–45 years (17.1%, n = 12). In terms of marital status, 57.1% of the caregivers were single (n = 40), whereas 42.9% were married (n = 30).

Regarding educational background, most participants had completed education at the Bachelor's level (28.6%, n = 20), followed by Intermediate (27.1%, n = 19), Matriculation (24.3%, n = 17), and Master's level (20.0%, n = 14). Concerning socioeconomic status, the majority of participants belonged to the middle class (72.9%, n = 51), while 14.3% (n = 10) were from the upper class and 12.9% (n = 9) from the lower class.

In terms of employment status, half of the participants were students (50.0%, n = 35), followed by 41.4% (n = 29) who were fully employed, 7.1% (n = 5) retired, and only 1.4% (n = 1) unemployed. As for the relationship with the patient, the majority of caregivers were siblings of the patients (60.0%, n = 42), whereas 22.9% (n = 16) were children and 17.1% (n = 12) were spouses of the patients.

Overall, the demographic data suggest that the majority of caregivers were young, single, and educated individuals primarily belonging to the middle socioeconomic class, with most serving as siblings to the patients they cared for.

Table 2*Psychometric Properties of Study Major Variables (N=70)*

Measures	k	α	Range		M	SD	Skew.	Kurt.
			Min	Max				
CSI	12	.60	6	12	9.20	2.09	-.11	-1.45
GHQ	12	.73	25	36	29.87	1.81	.12	1.40
SF	12	.77	19	31	24.53	2.47	.52	-.04
SWB	20	.71	40	112	95.26	8.83	-1.5	2.17

Note. CSI = Caregiving Stress Index; GHQ = General Health Questionnaire; SF = Short form for health survey; SWB = Spiritual Wellbeing Scale; Skew = Skewness; Kurt = Kurtosis

Table 2 displays the psychometric properties and descriptive statistics of the study variables. The Caregiver Stress Index (CSI) ($\alpha = .60$) showed moderate variability and an approximately normal distribution (skewness = -0.11 , kurtosis = -1.45). The General Health Questionnaire (GHQ) ($\alpha = .73$) demonstrated low variability and a near-normal distribution (skewness = 0.12 , kurtosis = 1.40). The Short Health Survey (SF) ($\alpha = .77$) showed slight positive skewness (0.52) and near-normal kurtosis (-0.04). The Spiritual Wellbeing Scale (SWB) ($\alpha = .71$) exhibited a moderate negative skew (-1.50) and higher peakedness (kurtosis = 2.17), indicating generally high wellbeing scores. Overall, reliability coefficients ranged from $.60$ to $.77$, reflecting acceptable internal consistency across measures.

Table 3

Correlation of Caregiving Burden with Mental health, Physical Health and Spiritual health (N = 70)

Variable	1	2	3	4
1.Caregiving Burden	-			
2.Mental Health	-.62**	-		
3.Physical Health	-.29*	.13	-	
4.Spiritual health	-.07	.04	.09	-

Note: Correlations marked with an asterisk () were significant at $p < .05$ where as those marked with an asterisk (**) were significant at $p < .01$*

Table 3 presents the Pearson product–moment correlations among the study variables. Results indicated a significant negative correlation between caregiver stress (CSI_T) and mental health (GHQ_T), $r(68) = -.62$, $p < .001$, suggesting that higher caregiver stress was associated with poorer general health. A significant negative correlation was also found between caregiver stress and physical health (SF_T), $r(68) = -.29$, $p = .015$, indicating that greater stress was related to physical health. No significant correlations were observed between caregiver stress and spiritual health (SWB_T), $r(68) = -.08$, $p = .52$, or among the remaining variables (all $p > .05$). Overall, the findings suggest that higher levels of caregiving stress are linked to poorer mental and physical health among caregivers.

Table 4

Simple linear regression analysis demonstrating effect of Caregiving Burden on the prediction of Mental Health among caregivers (N=70)

	Mental Health	
		95% CI
Predictors	Model 1 B	LL, UL
(constant)	34.78***	[33.24, 36.35]
Caregiving Burden	-.54	[-.70, -.37]
R^2	.38	
F	42.03***	

*Note: *** $p < .000$; LL = Lower limit; UL = Upper Limit*

A simple linear regression was conducted to examine whether caregiving burden significantly predicts mental health among caregivers. The results indicated that caregiving burden significantly predicted mental health, $F(1, 68) = 42.03$, $p < .001$, explaining approximately 38% of the variance in mental health ($R^2 = .38$). The unstandardized regression coefficient for caregiving burden was negative and statistically significant ($B = -0.54$, 95% CI $[-0.70, -0.37]$), indicating that higher caregiving burden is associated with lower levels of mental health among caregivers. The constant was

34.78, suggesting that when caregiving burden is zero, the predicted level of mental health is 34.78.

Table 5

Simple linear regression analysis demonstrating effect of Caregiving Burden on the prediction of Physical Health among caregivers (N=70)

Physical Health		
		95% CI
Predictors	Model 1 B	LL, UL
(constant)	27.67	[25.11, 30.26]
Caregiving Burden	-.34	[-.62, -.07]
R^2	.08	
F	6.23*	

*Note: ** $p < .01$; LL = Lower limit; UL = Upper Limit*

A simple linear regression was conducted to determine whether caregiving burden significantly predicts physical health among caregivers. The results revealed that caregiving burden significantly predicted physical health, $F(1, 68) = 6.23$, $p < .01$, explaining approximately 8% of the variance in physical health ($R^2 = .08$). The unstandardized regression coefficient for caregiving burden was negative and statistically significant ($B = -0.34$, 95% CI $[-0.62, -0.07]$), indicating that higher caregiving burden is associated with lower levels of physical health among caregivers. The constant value of

27.67 suggests that when caregiving burden is zero, the predicted physical health score is 27.67.

Table 6*Moderating effect of spiritual health on caregiving burden and mental health (N=70)*

Predictor	<i>B</i>	<i>SEB</i>	<i>t</i>	<i>p</i>	95% CI
					<i>LL, UL</i>
Constant	29.88	.17	171.52	.00	[29.53, 30.22]
Spiritual health	-.02	.03	-.52	.61	[-.07, .04]
Caregiving Burden	-.53	.08	-6.37	.00	[-.70, -.36]
Caregiving Burden*Spiritual health	.01	.01	.58	.56	[-.02, .03]
<i>R</i> ²		.38			
<i>F</i>		13.79***			

*Note; (***) $p < .001$; LL = Lower Limit; UL = Upper Limit*

A moderation analysis using Hayes' (2022) PROCESS Model 1 examined whether spiritual health moderates the relationship between caregiving burden and mental health. The overall model was significant, $F(3, 66) = 13.92$, $p < .001$, $R^2 = .387$. Caregiving burden negatively predicted mental health ($b = -0.532$, $p < .001$). However, the interaction between caregiving burden and spiritual health was not significant ($b = 0.008$, $p = .769$), indicating that spiritual health does not moderate the relationship between caregiving burden and mental health.

Table 7*Moderating effect of spiritual health on caregiving burden and physical health (N=70)*

Predictor	<i>B</i>	<i>SEB</i>	<i>t</i>	<i>p</i>	95% CI
					<i>LL, UL</i>
Constant	24.50	.29	85.39	.00	[23.92, 25.07]
Spiritual health	.05	.04	1.11	-.27	[-.04, .15]
Caregiving Burden	-.34	.14	-2.47	.02	[-.62, -.07]
Caregiving Burden*Spiritual health	-.02	.02	-.99	.32	[-.06, .02]
<i>R</i> ²			.10		
F			2.5		

A moderation analysis using Hayes' (2022) PROCESS Model 1 examined whether spiritual health moderates the relationship between caregiving burden and physical health. The overall model was not significant, $F(3, 66) = 2.51$, $p = .067$, $R^2 = .102$. Caregiving burden negatively predicted physical health ($b = -0.342$, $p = .016$), while the interaction between caregiving burden and spiritual health was not significant ($b = -0.020$, $p = .327$), indicating that spiritual health does not moderate this relationship.

Table 8

Multiple linear regression analysis demonstrating effect of Demographics on the prediction of caregiving burden among caregivers (n=70)

Predictors	Caregiving Burden	
	Model 1 B	95% CI
		LL, UL
(constant)	3.68	[-1.73, 9.08]
Age	.04	[-.08, .16]
Gender	.97	[-.08, 2.02]
Marital Status	.63	[-.82, 2.09]
Education Level	-.34	[-1.19, .51]
Socioeconomic Status	.68	[-.37, 1.73]
Employment Status	.67	[-.44, .57]
Relationship to caregiver	.42	[-.23, 1.07]
R ²		.11
F		1.12

A multiple linear regression analysis was conducted to examine whether demographic variables (age, gender, marital status, education level, socioeconomic status, employment status, and relationship to the care recipient) predict caregiving burden among caregivers ($n = 70$). The overall model was not statistically significant, $F(7, 62) = 1.12$, $p > .05$, indicating that the set of demographic factors did not significantly predict caregiving burden. The model explained 11% of the variance in caregiving burden ($R^2 = .11$).

DISCUSSION

The present research intended to examine the impact of caregiving burden on the mental and physical health of primary caregivers of patients diagnosed with hematological cancers, while also exploring the moderating role of spiritual health in this relationship. The findings of this research provide valuable insights into how the demands of caregiving influence caregivers' overall well-being and how spiritual health may serve as a protective factor in mitigating the adverse effects of caregiving stress.

The finding as mentioned in Table 3 that caregiver stress (CSI_T) was significantly and negatively correlated with mental health (GHQ_T) fully supports the study's hypothesis that higher caregiving burden is associated with poorer mental health among primary caregivers of hematological cancer patients. This result is consistent with previous research demonstrating that caregiving stress significantly predicts psychological distress and reduced mental well-being among caregivers of cancer patients. For instance, Karimi Moghaddam et al. (2023) reported that elevated caregiver burden was strongly associated with higher levels of depression, anxiety, and emotional exhaustion among caregivers of cancer patients. Similarly, a study published in *BMC Public Health* found that increased caregiving burden negatively impacted caregivers' quality of life through heightened psychological distress (Zakeri et al., 2024). These findings align with earlier evidence suggesting that persistent caregiving stress contributes to mental health deterioration due to prolonged emotional strain and limited coping resources (Kim et al., 2020). Hence, the present result reinforces the established

understanding that as caregiver stress intensifies, mental health outcomes decline, confirming the hypothesized negative association between caregiving burden and mental well-being.

The significant negative correlation found between caregiver stress (CSI_T) and physical health (SF_T) as mentioned in Table 3 supports the study's hypothesis that higher caregiving burden is associated with poorer physical health among primary caregivers of hematological cancer patients. This finding is according to previous research demonstrating that caregiving stress adversely affects caregivers' physical well-being through pathways such as fatigue, sleep disturbance, and impaired immune function. Schulz and Sherwood (2008) noted that chronic stress among caregivers often leads to deterioration in physical health, including increased risk for hypertension, cardiovascular disease, and other stress-related conditions. Similarly, Bevans and Sternberg (2012) found that caregivers of cancer patients exhibited lower physical functioning, vitality, and general health compared to population norms. Furthermore, Rohleder et al. (2009) highlighted that prolonged caregiving stress contributes to physiological dysregulation, resulting in weakened immune responses and greater vulnerability to illness. These converging findings strengthen the current study's conclusion that increased caregiver stress is a significant predictor of poorer physical health outcomes, confirming the hypothesized negative relationship.

The finding that caregiving burden significantly predicted mental health as mentioned in Table 4, fully supports the study's hypothesis that higher caregiving burden leads to poorer mental health among primary caregivers of hematological cancer patients. The result, showing that caregiving burden explained 38% of the variance in mental

health, highlights the considerable psychological toll that caregiving responsibilities impose. This finding is consistent with prior studies that have demonstrated a strong negative predictive relationship between caregiver burden and mental health outcomes. For instance, Chang et al. (2009) found that higher caregiving burden significantly predicted poorer psychological well-being and greater psychiatric morbidity among family caregivers.

The finding that caregiving burden significantly predicted physical health as mentioned in Table 5 is in full agreement with the study's hypothesis that higher caregiving burden leads to poorer physical health among caregivers of hematological cancer patients. This result aligns with numerous studies that have demonstrated similar patterns across caregiving populations. For example, Vitaliano et al. (2003) found that caregivers experiencing higher stress levels exhibited poorer physical health indicators, including elevated blood pressure and greater risk for metabolic and cardiovascular problems. Similarly, Rhee et al. (2008) reported that caregiving burden was a significant predictor of self-reported physical health decline among family caregivers, primarily due to fatigue, lack of rest, and chronic strain. Pinquart and Sörensen (2007) also concluded through a meta-analysis that caregiving burden is consistently associated with poorer physical functioning, reduced immune competence, and increased health complaints. In the context of cancer caregiving

The moderation analysis using Hayes' (2022) PROCESS Model 1 as mentioned in Table 6 revealed that the interaction between caregiving burden and spiritual health (was not significant, indicating that spiritual health was unable to moderate the relationship between caregiving burden and mental health. This result contrasts with the

expectation that spiritual well-being would buffer this relationship. Similar findings have been reported in previous research, where spirituality or religiosity, though beneficial for overall well-being, did not significantly moderate the link between caregiver stress and mental health outcomes. For example, Losada et al. (2010) found that religiosity did not moderate the relationship between caregiving burden and depressive symptoms among dementia caregivers. Likewise, Rivera et al. (2020) reported that while higher spiritual health correlated with lower distress, it did not buffer the effects of burden on psychological outcomes among cancer caregivers. A recent study by Choi et al. (2022) also found that spirituality had a direct association with caregiver well-being but did not significantly moderate the impact of stress on mental health.

The moderation analysis using Hayes' (2022) PROCESS Model 1 mentioned in Table 7 revealed that the spiritual health did not have any moderating impact on the relationship of caregiving burden and physical health. These findings are in contrast with the hypothesis but this outcome is consistent with prior studies reporting that while spirituality is beneficial for psychological coping, it does not always exert a buffering effect on the relationship between caregiving stress and physical health outcomes. For instance, Kim and Knight (2017) found that spiritual health was positively related to caregivers' overall health but did not moderate the effects of caregiving stress on physical symptoms. Similarly, Herrera et al. (2009) observed that spiritual and religious involvement improved subjective well-being but failed to significantly reduce the physiological consequences of prolonged caregiver stress.

The present study as in Table 8 has found that demographic variables such as age, gender, marital status, education level, socioeconomic status, employment status, and

relationship to the care recipient did not significantly predict caregiving burden among caregivers of hematological cancer patients. The result is in contrast of our hypothesis but this finding aligns with a previous study that has similarly reported weak or non-significant associations between demographic factors and caregiving burden. For instance, Choi et al. (2019) and Kim and Schulz (2018) found that caregiving burden is more strongly influenced by psychological, situational, and disease-related variables rather than demographic characteristics

Limitations and Suggestions

Following are the limitations of this study:

1. The size of the sample constraints the statistical power of the study and may reduce the generalizability of the findings to the broader population of caregivers of hematological cancer patient
2. Since purposive sampling was used, the sample may not represent all caregivers, leading to potential sampling bias. This limits the external validity and the ability to generalize results to other caregiver populations or cultural contexts
3. The cross-sectional survey design captures data at a single point in time, which prevents the inference of causal relationships. between caregiving burden, spiritual health, and health outcomes.
4. All data were obtained using self-report questionnaires, which may be influenced by response biases, including social desirability, memory inaccuracies, or over reporting of symptoms

5. The study does not account for changes in caregiving burden, spiritual health, or physical and mental health over time, which may fluctuate with disease progression or caregiving duration.
6. Factors such as caregivers' age, duration of caregiving, patients' disease severity, access to social support, or prior health conditions were not statistically controlled, which might have influenced both burden and health outcomes.
7. The conceptualization of "spiritual health" might differ across individuals or cultural contexts, limiting how accurately the instrument reflects spirituality among caregivers of hematological cancer patients.
8. Since the study focused specifically on caregivers of hematological cancer patients, the findings may not apply to caregivers of patients with other types of chronic or terminal illnesses.

Following are the suggestions

1. Future research should involve larger and more diverse samples to enhance the generalizability and statistical robustness of findings concerning caregiving burden and health outcomes
2. Employing random or stratified sampling techniques could help reduce sampling bias and better represent the broader population of caregivers.
3. Long-term studies should be conducted to examine changes in caregiving burden, spiritual well-being, and mental and physical health over time, enabling stronger causal inferences.

4. Including qualitative interviews or mixed-method designs can provide deeper insights into caregivers' lived experiences, coping mechanisms, and the role of spirituality in their daily caregiving activities.
5. Future studies should examine additional moderating or mediating factors, such as social support, resilience, coping styles, or emotional regulation, to understand the mechanisms linking burden and health outcomes.
6. Replicating the study among caregivers of patients with other cancers or chronic illnesses could reveal whether the observed relationships are specific to hematological cancers or generalizable across caregiving contexts.

Implications of this study

The results of this study carry immense significance for research, clinical practice, and caregiver support interventions. The significant negative relationships between caregiving burden and both mental and physical health highlight the urgent need for targeted psychological and physical health support for caregivers of hematological cancer patients. These results emphasize that caregivers experience substantial stress that can adversely affect their overall well-being, suggesting that healthcare providers should routinely assess caregiver burden and integrate stress management, counseling, and health promotion programs into cancer care services. It also highlights the need for routine screening and early identification of highly burdened caregivers in oncology settings. Incorporating caregiver-focused interventions, such as psychoeducation, stress management, and coping skills training, is essential to prevent psychological distress and physical health deterioration. Adopting a multidisciplinary, caregiver-centered approach that addresses psychological, physical, and spiritual needs is crucial for improving outcomes for

primary caregivers of hematological cancer patients. Moreover, the absence of a moderating effect of spiritual health implies that while spirituality may be beneficial for personal coping, it alone may not buffer the adverse effects of caregiving burden on health outcomes. Therefore, comprehensive caregiver interventions should not only foster spiritual health but also address emotional, social, and physical dimensions of caregiver support through a holistic, multidisciplinary approach.

Conclusion

In conclusion, the present study demonstrated that caregiving burden has a significant negative impact on both the mental and physical health of primary caregivers of hematological cancer patients. These findings suggest that as caregiving demands increase, caregivers experience greater psychological distress and poorer physical well-being. However, spiritual health did not moderate the relationship between caregiving burden and health outcomes, indicating that spirituality alone may not be sufficient to buffer the negative effects of caregiving stress. Overall, the study underscores the need for comprehensive caregiver support strategies that address psychological and physical health challenges while recognizing the potential but limited role of spiritual health in mitigating caregiver burden.

REFERENCES

- Abdollahpour, I., Nedjat, S., & Noroozian, M. (2012). Burden of care and caregiver satisfaction among Iranian caregivers of patients with dementia. *Archives of Iranian Medicine*, 15(9), 648–654.
- Adashek, J. J., Subbiah, I. M., & Patel, M. (2020). Caregiver burden and physical health among family caregivers of patients with advanced cancer: A systematic review. *Supportive Care in Cancer*, 28(2), 513–524. <https://doi.org/10.1007/s00520-019-04955-7>
- Adelman, R. D., Tmanova, L. L., Delgado, D., Dion, S., & Lachs, M. S. (2014). Caregiver burden: A clinical review. *JAMA*, 311(10), 1052–1060. <https://doi.org/10.1001/jama.2014.304>
- Anum, J., & Dasti, R. (2015). Caregiver burden, spirituality, and psychological well-being of parents having children with thalassemia. *Journal of Religion and Health*, 55(3), 941–955. <https://doi.org/10.1007/s10943-015-0127-1>
- Bauman, N. J. (2015). The stigma of mental health in athletes: Are mental toughness and mental health seen as contradictory in elite sport? *British Journal of Sports Medicine*, 50(3), 135–136. <https://doi.org/10.1136/bjsports-2015-095570>
- Belloc, N. B., & Breslow, L. (1972). Relationship of physical health status and health practices. *Preventive Medicine*, 1(3), 409–421. [https://doi.org/10.1016/0091-7435\(72\)90014-x](https://doi.org/10.1016/0091-7435(72)90014-x)

- Bevans, M., & Sternberg, E. M. (2012). Caregiving burden, stress, and health effects among family caregivers of adult cancer patients. *JAMA*, 307(4), 398–403. <https://doi.org/10.1001/jama.2012.29>
- Bidwell, J. T., Lyons, K. S., Lee, C. S., & Clark, R. (2021). Caregiver well-being and physiological outcomes: Associations among chronic stress, inflammation, and physical health in caregivers of adults with chronic illness. *Biological Research for Nursing*, 23(2), 179–188. <https://doi.org/10.1177/1099800420974910>
- Bird, M. D., Chow, G. M., & Cooper, B. T. (2018). Student-athletes' mental health help-seeking experiences: A mixed methodological approach. *Journal of College Student Psychotherapy*, 32(4), 322–338. <https://doi.org/10.1080/87568225.2017.1366287>
- Bishop, M. M., Beaumont, J. L., Hahn, E. A., Cella, D., Andrykowski, M. A., Brady, M. J., ... & Wingard, J. R. (2015). Late effects of cancer and hematopoietic stem-cell transplantation on spouses or partners compared with survivors and survivor–partner dyads. *Journal of Clinical Oncology*, 25(11), 1403–1411. <https://doi.org/10.1200/JCO.2006.08.8824>
- Chang, H. Y., Chiou, C. J., & Chen, N. S. (2010). Impact of mental health and caregiver burden on family caregivers' physical health. *Archives of Gerontology and Geriatrics*, 50(3), 267–271. <https://doi.org/10.1016/j.archger.2009.04.006>
- Cheng, S. T., Li, K. K., Leung, E. M. F., & Chan, A. C. M. (2019). Social exchanges and subjective burden among family caregivers of older adults: The role of caregiving

- self-efficacy. *The Gerontologist*, 59(3), 509–519.
<https://doi.org/10.1093/geront/gnx211>
- Chou, K. R. (2000). Caregiver burden: A concept analysis. *Journal of Pediatric Nursing*, 15(6), 398–407. <https://doi.org/10.1053/jpdn.2000.18372>
- Cui, P., Zhang, C., & Li, Y. (2024). Caregiver burden and health-related quality of life: The mediating role of psychological distress and moderating effects of coping. *BMC Palliative Care*, 23(1), 42–52. <https://doi.org/10.1186/s12904-024-01168-9>
- Engel, G. L. (1977). The need for a new medical model: A challenge for biomedicine. *Science*, 196(4286), 129–136. <https://doi.org/10.1126/science.847460>
- Fekete, C., Tough, H., Siegrist, J., & Brinkhof, M. W. G. (2017). Health impact of objective burden, subjective burden and positive aspects of caregiving: An observational study among caregivers in Switzerland. *BMJ Open*, 7(12), e017369. <https://doi.org/10.1136/bmjopen-2017-017369>
- Fisher, J. W. (2011). The four domains model: Connecting spirituality, health and well-being. *Religions*, 2(1), 17–28. <https://doi.org/10.3390/rel2010017>
- Fredman, L., Cauley, J. A., Hochberg, M., Ensrud, K. E., Doros, G., & Study of Osteoporotic Fractures Research Group. (2015). Caregiving, mortality, and mobility decline: The Health, Aging, and Body Composition (Health ABC) study. *Journal of the American Geriatrics Society*, 63(10), 1874–1880. <https://doi.org/10.1111/jgs.13602>

- Friðriksdóttir, N., Saevarsdóttir, T., Halfdanardóttir, S. I., Jónsdóttir, A., Magnúsdóttir, H., Olafsdóttir, K. L., & Gunnarsdóttir, S. (2011). Family members of cancer patients: Needs, quality of life and symptoms of anxiety and depression. *Acta Oncologica*, 50(2), 252–258. <https://doi.org/10.3109/0284186X.2010.529821>
- Galderisi, S., Heinz, A., Kastrup, M., Beezhold, J., & Sartorius, N. (2015). Toward a new definition of mental health. *World Psychiatry*, 14(2), 231–233. <https://doi.org/10.1002/wps.20231>
- Garber, C. E., Blissmer, B., Deschenes, M. R., Franklin, B. A., Lamonte, M. J., Lee, I., Nieman, D. C., & Swain, D. P. (2011). Quantity and quality of exercise for developing and maintaining fitness in healthy adults. *Medicine & Science in Sports & Exercise*, 43(7), 1334–1359. <https://doi.org/10.1249/mss.0b013e318213feff>
- Gaston-Johansson, F., Lachica, E. M., Fall-Dickson, J. M., & Kennedy, M. J. (2004). Psychological distress, fatigue, burden of care, and quality of life in primary caregivers of patients with breast cancer undergoing autologous bone marrow transplantation. *Oncology Nursing Forum*, 31(6), 1161–1169. <https://doi.org/10.1188/04.onf.1161-1169>
- Gaugler, J. E., Mittelman, M. S., Hepburn, K., & Newcomer, R. (2010). Clinically significant changes in burden and depression among dementia caregivers following nursing home admission. *BMC Medicine*, 8(85). <https://doi.org/10.1186/1741-7015-8-85>

- Geng, H., Chuang, D. M., Yang, F., Yang, Y., Liu, W., & Zhang, Y. (2018). Prevalence and determinants of depression in caregivers of leukemia patients in China. *Psycho-Oncology*, 27(2), 509–516. <https://doi.org/10.1002/pon.4512>
- Given, B. A., Given, C. W., & Sherwood, P. (2011). Family and caregiver needs over the course of the cancer trajectory. *Journal of Supportive Oncology*, 9(4), 175–182. <https://doi.org/10.1016/j.suonc.2011.05.002>
- Gucciardi, D. F., Hanton, S., Gordon, S., Mallett, C. J., & Temby, P. (2016). The concept of mental toughness: Tests of dimensionality, nomological network, and traitness. *Journal of Personality*, 84(1), 26–44. <https://doi.org/10.1111/jopy.12079>
- Hawks, S. R. (2004). Spiritual wellness, holistic health, and the practice of health education. *American Journal of Health Education*, 35(1), 11–16. <https://doi.org/10.1080/19325037.2004.10603609>
- Karban, K. (2016). *Social work and mental health*. Polity Press.
- Karimi Moghaddam, Z., Shahrabaki, P. M., & Khoshbakht, F. (2023). Relationship between caregiving burden and physical health among family caregivers of cancer patients: A cross-sectional study. *Asian Pacific Journal of Cancer Prevention*, 24(3), 823–829. <https://doi.org/10.31557/APJCP.2023.24.3.823>
- Kessler, R. C., Berglund, P., Demler, O., Jin, R., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, 62(6), 593–602. <https://doi.org/10.1001/archpsyc.62.6.593>

- Keyes, C. L. M. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of Health and Social Behavior*, 43(2), 207–222.
<https://doi.org/10.2307/3090197>
- Kim, S. H., & Kim, Y. (2015). The impact of caregiving burden on mental health among family caregivers of cancer patients: Mediating effects of coping strategies and social support. *Supportive Care in Cancer*, 23(7), 2185–2193.
<https://doi.org/10.1007/s00520-014-2577->
- Kim, Y., Schulz, R., & Carver, C. S. (2020). Benefit finding in the cancer caregiving experience. *Psychosomatic Medicine*, 82(8), 734–742.
<https://doi.org/10.1097/PSY.0000000000000843>
- Koenig, H. G. (2012). Religion, spirituality, and health: The research and clinical implications. *ISRN Psychiatry*, 2012, 278730.
<https://doi.org/10.5402/2012/278730>
- Lee, Y., Tang, S. T., & Chen, Y. Y. (2009). Health status and caregiving experience among family caregivers of older adults with chronic illness in Taiwan. *Public Health Nursing*, 26(4), 299–308. <https://doi.org/10.1111/j.1525-1446.2009.00781.x>
- Li, L. W., Seltzer, M. M., & Greenberg, J. S. (2004). Caregiving burden and physical health of family caregivers: A longitudinal study. *Journal of Gerontology: Series B*, 59(1), S3–S11. <https://doi.org/10.1093/geronb/59.1.S3>

- Liu, J. (2020). Caregiver burden and its influencing factors: A literature review. *International Journal of Nursing Sciences*, 7(4), 438–447. <https://doi.org/10.1016/j.ijnss.2020.07.012>
- López, J., Crespo, M., & Arán, A. (2005). Risk and protective factors in the quality of life of family caregivers of dependent elderly. *Aging & Mental Health*, 9(2), 113–123. <https://doi.org/10.1080/13607860412331318451>
- Milbury, K., Badr, H., & Carmack, C. L. (2017). The role of cognitive processing and self-efficacy in the psychological adjustment of hematologic cancer caregivers. *Psycho-Oncology*, 26(4), 488–495. <https://doi.org/10.1002/pon.4181>
- Moberg, D. O. (2010). Assessing and measuring spirituality: Confronting dilemmas of universal and particular evaluative criteria. *Journal of Adult Development*, 17(4), 213–225. <https://doi.org/10.1007/s10804-010-9105-x>
- Mosher, C. E., Champion, V. L., Hanna, N., Jalal, S. I., Fakiris, A. J., Birdas, T. J., & Given, B. A. (2013). Support service use and interest in support services among distressed family caregivers of lung cancer patients. *Psycho-Oncology*, 22(7), 1549–1556. <https://doi.org/10.1002/pon.3168>
- Nielsen, I. H., Stenberg, U., & Thorsen, L. (2024). Quality of life and physical health outcomes among caregivers of patients with hematologic malignancies: A cross-sectional study. *European Journal of Oncology Nursing*, 66, 102404. <https://doi.org/10.1016/j.ejon.2024.102404>

- Northouse, L., Williams, A. L., Given, B., & McCorkle, R. (2012). Psychosocial care for family caregivers of patients with cancer. *Journal of Clinical Oncology*, 30(11), 1227–1234. <https://doi.org/10.1200/JCO.2011.39.5798>
- Northouse, L. L., Katapodi, M. C., Song, L., Zhang, L., & Mood, D. W. (2012). Interventions with family caregivers of cancer patients: Meta-analysis of randomized trials. *CA: A Cancer Journal for Clinicians*, 60(5), 317–339. <https://doi.org/10.3322/caac.20081>
- O’Riordan, S., Hayes, C., & Hegarty, J. (2023). The effects of stress management interventions on physical health and sleep among caregivers: A systematic review and meta-analysis. *Journal of Psychosomatic Research*, 165, 111129. <https://doi.org/10.1016/j.jpsychores.2023.111129>
- Papastavrou, E., Charalambous, A., Tsangari, H., & Karayiannis, G. (2014). The burdensome and depressive experience of caring: What cancer, schizophrenia, and Alzheimer’s disease caregivers have in common. *Cancer Nursing*, 37(5), E1–E12. <https://doi.org/10.1097/NCC.0000000000000101>
- Patel, V., Saxena, S., Lund, C., Thornicroft, G., Baingana, F., Bolton, P., ... & Unützer, J. (2018). The Lancet Commission on global mental health and sustainable development. *The Lancet*, 392(10157), 1553–1598. [https://doi.org/10.1016/S0140-6736\(18\)31612-X](https://doi.org/10.1016/S0140-6736(18)31612-X)
- Pearlin, L. I., Mullan, J. T., Semple, S. J., & Skaff, M. M. (1990). Caregiving and the stress process: An overview of concepts and their measures. *The Gerontologist*, 30(5), 583–594. <https://doi.org/10.1093/geront/30.5.583>

- Pinquart, M., & Sörensen, S. (2007). Correlates of physical health of informal caregivers: A meta-analysis. *The Journals of Gerontology: Series B*, 62(2), P126–P137.
<https://doi.org/10.1093/geronb/62.2.P126>
- Raina, P., O'Donnell, M., Schwellnus, H., Rosenbaum, P., King, G., Brehaut, J., ... & Wood, E. (2004). Caregiving process and caregiver burden: Conceptual models to guide research and practice. *BMC Pediatrics*, 4(1), 1–13.
<https://doi.org/10.1186/1471-2431-4-1>
- Ramezani, M., Ahmadi, F., Mohammadi, E., & Kazemnejad, A. (2014). Spiritual care in nursing: A concept analysis. *International Nursing Review*, 61(2), 211–219.
<https://doi.org/10.1111/inr.12099>
- Reardon, C. L., Hainline, B., Aron, C. M., Baron, D., Baum, A. L., Bindra, A., ... & Engebretsen, L. (2019). Mental health in elite athletes: International Olympic Committee consensus statement (2019). *British Journal of Sports Medicine*, 53(11), 667–699. <https://doi.org/10.1136/bjsports-2019-100715>
- Ribeiro, L. B., & Neri, A. L. (2012). Burden of care and health of elderly caregivers: The relevance of psychosocial variables. *Revista Brasileira de Geriatria e Gerontologia*, 15(4), 707–731. <https://doi.org/10.1590/S1809-98232012000400011>
- Robinson, K. M. (1990). Predictors of burden among wives of chronically ill husbands. *Research in Nursing & Health*, 13(6), 375–384.
<https://doi.org/10.1002/nur.4770130606>

- Rogers, M. E., & Keller, E. F. (2020). The science of unitary human beings: Principles of Rogerian nursing science. In *Nursing Theories and Nursing Practice* (pp. 115–134). F. A. Davis Company.
- Schulz, R., & Sherwood, P. R. (2008). Physical and mental health effects of family caregiving. *The American Journal of Nursing*, 108(9 Suppl), 23–27. <https://doi.org/10.1097/01.NAJ.0000336406.45248.4c>
- Sequeira, C. A. (2013). Difficulties, coping strategies, satisfaction, and burden in informal Portuguese caregivers. *Journal of Clinical Nursing*, 22(3–4), 491–500. <https://doi.org/10.1111/j.1365-2702.2012.04188.x>
- Seymour, L. (2019). Mental health and work: Impact, issues and good practices. *World Health Organization*.
- Shah, A. J., & Wadoo, O. (2020). Caregiver burden in mental illness: The need for public health action. *International Journal of Mental Health Systems*, 14(1), 29–37. <https://doi.org/10.1186/s13033-020-00362-6>
- Silveira, M. J., Given, C. W., & Given, B. A. (2010). The impact of chronic disease on family caregiver health: Findings from the National Study of Caregiving. *Journal of Aging and Health*, 22(3), 377–397. <https://doi.org/10.1177/0898264309359188>
- Snyder, C. R., & Lopez, S. J. (Eds.). (2002). *Handbook of positive psychology*. Oxford University Press.
- Stansfeld, S., Clark, C., Caldwell, T., Rodgers, B., & Power, C. (2008). Psychosocial work characteristics and anxiety and depressive disorders in midlife: The effects

- of prior psychological distress. *Occupational and Environmental Medicine*, 65(9), 634–642. <https://doi.org/10.1136/oem.2007.036640>
- Swain, P., & Gale, N. (2014). Spirituality in health care: Rediscovering the core value of humanity. *Journal of Holistic Nursing*, 32(1), 37–45. <https://doi.org/10.1177/0898010113498827>
- Tarlow, B. J., Wisniewski, S. R., Belle, S. H., Rubert, M., Ory, M. G., & Gallagher-Thompson, D. (2004). Positive aspects of caregiving: Contributions of the REACH project to the development of new measures for Alzheimer's caregiving. *Research on Aging*, 26(4), 429–453. <https://doi.org/10.1177/0164027504264493>
- Vitaliano, P. P., Zhang, J., & Scanlan, J. M. (2003). Is caregiving hazardous to one's physical health? A meta-analysis. *Psychological Bulletin*, 129(6), 946–972. <https://doi.org/10.1037/0033-2909.129.6.946>
- World Health Organization. (2001). *The World Health Report 2001: Mental health—New understanding, new hope*. World Health Organization.
- World Health Organization. (2006). *Constitution of the World Health Organization—Basic documents* (45th ed.). World Health Organization.
- World Health Organization. (2022). *Physical activity*. <https://www.who.int/news-room/fact-sheets/detail/physical-activity>
- Zarit, S. H., Reever, K. E., & Bach-Peterson, J. (1980). Relatives of the impaired elderly: Correlates of feelings of burden. *The Gerontologist*, 20(6), 649–655. <https://doi.org/10.1093/geront/20.6.649>

APPENDICES

Annexure A: Informed Consent

You are invited to participate in a research study "impact of caregiving burden on mental and physical health of primary caregivers of hematological cancer patients moderating role of spiritual health". This study is being conducted by Muhammad Afzal Jamal, MS Scholar, Department of Psychology, International Islamic University, Islamabad.

Your participation involves completing a questionnaire assessing these factors. Participation is voluntary, and you can withdraw at any time . All information will be kept confidential and used solely for research purposes. Your responses are anonymous.

Some questions might cause mild distress; you can choose not to answer or withdraw if uncomfortable. Your contribution will help advance understanding of mental health factors among psychologists.

By completing the questionnaire, you indicate informed consent. If you have any queries or concerns, please feel free to contact me at muhammad.mscp512@student.iiu.edu.pk.

Signature _____

Annexure B: Demographic Sheet

Age					
Gender	1) Male			2) Female	
Marital Status	1) Single			2) Married	
Educational Background	1) Matric	2) Inter	3) BS	4) MS	5) PhD
Socioeconomic Status	1) Upper Class		2) Middle Class		3) Lower Class
Employment Status	1) Fully Employed		2) Unemployed	3) Retired	4) Student
Relationship to patient	1) Spouse	2) Sibling	3) Parent		4) Child

Annexure C: Caregiving Strain Index

Caregiver Strain Index (CSI)

I am going to read a list of things that other people have found to be difficult. **Would you tell me whether any of these apply to you?** (GIVE EXAMPLES)

	Yes = 1	No = 0
Sleep is disturbed (e.g., because . . . is in and out of bed or wanders around at night)		
It is inconvenient (e.g., because helping takes so much time or it's a long drive over to help)		
It is a physical strain (e.g., because of lifting in and out of a chair; effort or concentration is required)		
It is confining (e.g., helping restricts free time or cannot go visiting)		
There have been family adjustments (e.g., because helping has disrupted routine; there has been no privacy)		
There have been changes in personal plans (e.g., had to turn down a job; could not go on vacation)		
There have been emotional adjustments (e.g., because of severe arguments)		
Some behavior is upsetting (e.g., because of incontinence; . . . has trouble remembering things; or . . . accuses people of taking things)		
It is upsetting to find . . . has changed so much from his/her former self (e.g., he/she is a different person than he/she used to be)		
There have been work adjustments (e.g., because of having to take time off)		
It is a financial strain		
Feeling completely overwhelmed (e.g., because of worry about . . . ; concerns about how you will manage)		
Total Score (Count yes responses. Any positive answer may indicate a need for intervention in that area. A score of 7 or higher indicates a high level of stress.)		

Robinson, B. (1983). Validation of a Caregiver Strain Index. *Journal of Gerontology*, 38:344-348.
Copyright © The Gerontological Society of America. Reproduced by permission of the publisher.

Annexure D: General Health Questionnaire

Supplement 1: The General Health Questionnaire (GHQ) 12

The next questions are about how you have been feeling over the last few weeks.

- Have you recently been able to concentrate on whatever you're doing?
 1. Better than usual
 2. Same as usual
 3. Less than usual
 4. Much less than usual
- Have you recently lost much sleep over worry?
 1. Not at all
 2. No more than usual
 3. Rather more than usual
 4. Much more than usual
- Have you recently felt that you were playing a useful part in things?
 1. More so than usual
 2. Same as usual
 3. Less so than usual
 4. Much less than usual
- Have you recently felt capable of making decisions about things?
 1. More so than usual
 2. Same as usual
 3. Less so than usual
 4. Much less capable
- Have you recently felt constantly under strain?
 1. Not at all
 2. No more than usual
 3. Rather more than usual
 4. Much more than usual
- Have you recently felt you couldn't overcome your difficulties?
 1. Not at all
 2. No more than usual
 3. Rather more than usual
 4. Much more than usual
- Have you recently been able to enjoy your normal day-to-day activities?
 1. More so than usual
 2. Same as usual
 3. Less so than usual
 4. Much less than usual
- Have you recently been able to face up to problems?
 1. More so than usual
 2. Same as usual
 3. Less able than usual
 4. Much less able
- Have you recently been feeling unhappy or depressed?

1. Not at all
 2. No more than usual
 3. Rather more than usual
 4. Much more than usual
- Have you recently been losing confidence in yourself?
 1. Not at all
 2. No more than usual
 3. Rather more than usual
 4. Much more than usual
 - Have you recently been thinking of yourself as a worthless person?
 1. Not at all
 2. No more than usual
 3. Rather more than usual
 4. Much more than usual
 - Have you recently been feeling reasonably happy, all things considered?
 1. More so than usual
 2. About the same as usual
 3. Less so than usual
 4. Much less than usual

Annexure E: SF-12 Health Survey

SF-12® Patient Questionnaire		Page 1 of 3
Patient Initials _____	Date of Birth: ____/____/____	Patkey: _____
Surgeon Name: _____		Date: _____
Examination Period: _____		
_____ Preop (1)	_____ 3 Year (4)	
_____ Immediate Postop (2)	_____ 5 Year (5)	
_____ 1 Year (3)	_____ Other (specify) (6): _____	

SF-12®:
This information will help your doctors keep track of how you feel and how well you are able to do your usual activities. Answer every question by placing a check mark on the line in front of the appropriate answer. It is not specific for arthritis. If you are unsure about how to answer a question, please give the best answer you can and make a written comment beside your answer.

1. In general, would you say your health is:

_____ Excellent (1)
_____ Very Good (2)
_____ Good (3)
_____ Fair (4)
_____ Poor (5)

The following two questions are about activities you might do during a typical day. Does YOUR HEALTH NOW LIMIT YOU in these activities? If so, how much?

2. MODERATE ACTIVITIES, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf:

_____ Yes, Limited A Lot (1)
_____ Yes, Limited A Little (2)
_____ No, Not Limited At All (3)

3. Climbing SEVERAL flights of stairs:

_____ Yes, Limited A Lot (1)
_____ Yes, Limited A Little (2)
_____ No, Not Limited At All (3)

During the PAST 4 WEEKS have you had any of the following problems with your work or other regular activities AS A RESULT OF YOUR PHYSICAL HEALTH?

4. ACCOMPLISHED LESS than you would like:

_____ Yes (1)
_____ No (2)

5. Were limited in the KIND of work or other activities:

_____ Yes (1)
_____ No (2)

Surgeon Initials _____ Date: _____

Patient Initials _____ Date of Birth: ____/____/____ Patkey: _____
Surgeon Name: _____ Date: _____
Examination Period: _____ Preop (1) _____ 3 Year (4)
_____ Immediate Postop (2) _____ 5 Year (5)
_____ 1 Year (3) _____ Other (specify) (6): _____

SF-12® Cont'd:

During the PAST 4 WEEKS, were you limited in the kind of work you do or other regular activities AS A RESULT OF ANY EMOTIONAL PROBLEMS (such as feeling depressed or anxious)?

6. ACCOMPLISHED LESS than you would like:

- _____ Yes (1)
_____ No (2)

7. Didn't do work or other activities as CAREFULLY as usual:

- _____ Yes (1)
_____ No (2)

8. During the PAST 4 WEEKS, how much did PAIN interfere with your normal work (including both work outside the home and housework)?

- _____ Not At All (1)
_____ A Little Bit (2)
_____ Moderately (3)
_____ Quite A Bit (4)
_____ Extremely (5)

The next three questions are about how you feel and how things have been DURING THE PAST 4 WEEKS. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the PAST 4 WEEKS -

9. Have you felt calm and peaceful?

- _____ All of the Time (1)
_____ Most of the Time (2)
_____ A Good Bit of the Time (3)
_____ Some of the Time (4)
_____ A Little of the Time (5)
_____ None of the Time (6)

Surgeon Initials _____ Date: _____

SF-12®

Page 3 of 3

Patient Initials _____ Date of Birth: ____/____/____

Patkey: _____

Surgeon Name: _____

Date: _____

Examination Period: _____ Preop (1) _____ 3 Year (4)
_____ Immediate Postop (2) _____ 5 Year (5)
_____ 1 Year (3) _____ Other (specify) (6): _____

SF-12® Cont'd:

10. Did you have a lot of energy?

- _____ All of the Time (1)
- _____ Most of the Time (2)
- _____ A Good Bit of the Time (3)
- _____ Some of the Time (4)
- _____ A Little of the Time (5)
- _____ None of the Time (6)

11. Have you felt downhearted and blue?

- _____ All of the Time (1)
- _____ Most of the Time (2)
- _____ A Good Bit of the Time (3)
- _____ Some of the Time (4)
- _____ A Little of the Time (5)
- _____ None of the Time (6)

12. During the PAST 4 WEEKS, how much of the time has your PHYSICAL HEALTH OR EMOTIONAL PROBLEMS interfered with your social activities (like visiting with friends, relatives, etc.)?

- _____ All of the Time (1)
- _____ Most of the Time (2)
- _____ A Good Bit of the Time (3)
- _____ Some of the Time (4)
- _____ A Little of the Time (5)
- _____ None of the Time (6)

Surgeon Signature _____

Date _____

SF-12® Health Survey © 1994, 2002 by Medical Outcomes Trust and QualityMetric Incorporated. All Rights Reserved.
SF-12® is a registered trademark of Medical Outcomes Trust.

Annexure F: Spiritual Wellbeing Scale

SWB Scale

For each of the following statements circle the choice that best indicates the extent of your agreement or disagreement as it describes your personal experience:

SA = Strongly Agree	D = Disagree
MA = Moderately Agree	MD = Moderately Disagree
A = Agree	SD = Strongly Disagree

- | | | | | | | |
|--|----|----|---|---|----|----|
| 1. I don't find much satisfaction in private prayer with God. | SA | MA | A | D | MD | SD |
| 2. I don't know who I am, where I came from, or where I'm going. | SA | MA | A | D | MD | SD |
| 3. I believe that God loves me and cares about me. | SA | MA | A | D | MD | SD |
| 4. I feel that life is a positive experience. | SA | MA | A | D | MD | SD |
| 5. I believe that God is impersonal and not interested in my daily situations. | SA | MA | A | D | MD | SD |
| 6. I feel unsettled about my future. | SA | MA | A | D | MD | SD |
| 7. I have a personally meaningful relationship with God. | SA | MA | A | D | MD | SD |
| 8. I feel very fulfilled and satisfied with life. | SA | MA | A | D | MD | SD |
| 9. I don't get much personal strength and support from my God. | SA | MA | A | D | MD | SD |
| 10. I feel a sense of well-being about the direction my life is headed in. | SA | MA | A | D | MD | SD |
| 11. I believe that God is concerned about my problems. | SA | MA | A | D | MD | SD |
| 12. I don't enjoy much about life. | SA | MA | A | D | MD | SD |
| 13. I don't have a personally satisfying relationship with God. | SA | MA | A | D | MD | SD |
| 14. I feel good about my future. | SA | MA | A | D | MD | SD |
| 15. My relationship with God helps me not to feel lonely. | SA | MA | A | D | MD | SD |
| 16. I feel that life is full of conflict and unhappiness. | SA | MA | A | D | MD | SD |
| 17. I feel most fulfilled when I'm in close communion with God. | SA | MA | A | D | MD | SD |
| 18. Life doesn't have much meaning. | SA | MA | A | D | MD | SD |
| 19. My relation with God contributes to my sense of well-being. | SA | MA | A | D | MD | SD |
| 20. I believe there is some real purpose for my life. | SA | MA | A | D | MD | SD |

Note: SWB Scale © 1982 by Craig W. Ellison and Raymond F. Paloutzian. All rights reserved. Effective January 1, 2022, the original Spiritual Well-Being Scale in English (SWBS; Paloutzian & Ellison, 1982; Ellison, 1983) and any of its translations (see Paloutzian et al., 2021, for elaboration and documentation of 10 translations) may be used at no cost, so long as the copyright byline appears on all copies whether paper, electronic, or other, and as long as standard source citations and credits are given in any publication or presentation of the research done with