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Exploring the Psychosocial Status and Use of Complementary Medicine of Hungarian Breast Cancer Patients in the Perioperative Period

Ph.D. thesis

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List of Abbreviations

AEs	Advanced Economies
ANOVA	Analysis of Variance
APOS	American Psychosocial Oncology Society
ASIR	age-standardized incidence rates
ASMR	age-standardized mortality rates
ASR	age-standardized rates
BC	breast cancer
CAM	Complementary and Alternative Medicine
CEE	Central and Eastern Europe
CM	Complementary Medicine
COVID-19	coronavirus disease 2019, a viral respiratory disease caused by a coronavirus SARS-CoV-2
EDEs	Emerging and Developing Economies
EORTC	European Organization for Research and Training in Cancer
EU	European Union
FQCI	Freiburg Questionnaire of Coping with Illness–Short Version
FQCI subscales:	
FQCI-APFC	FQCI Active and problem-focused coping
FQCI-DRC	FQCI Depressive and resigned coping
FQCI-SADC	FQCI Self-affirmation and distraction coping;
FQCI-SMRC	FQCI Searching for meaning and religious coping
HADS	Hospital Anxiety and Depression Scale
HADS-A	Hospital Anxiety and Depression Scale, Anxiety subscale
HADS-D	Hospital Anxiety and Depression Scale, Depression subscale
IMF	International Monetary Fund
IPOS	International Psycho-Oncology Society
MANOVA	Multivariate Analyses of Variance
MHLC	Multidimensional Health Locus of Control Scale
MHLC subscales:	
MHLC-C	MHLC Chance External Control
MHLC-DO	MHLC Doctor and Others External Control

MHLC-I	MHLC Internal Control
NACT	neoadjuvant chemotherapy
NCCIH	National Center for Complementary and Integrative Health
NCCN	National Comprehensive Cancer Network
NIO	National Institute of Oncology
PSS	perceived social support
PULET	Potentially Unsafe Low Evidence Therapies
SDS	Support Dimension Scale
SRH	Self-Rated Health
T&CM	Traditional and Complementary Medicine
TGH	three-generation households
TM	Traditional Medicine
TNM classification	Classification system for malignancies used worldwide based on the characteristics of the T (tumor), N (lymph node), and M (metastasis)
WB	World Bank
WHO	World Health Organization

PREFACE

Personal background and motivation.

Before presenting the topic of the dissertation, I would like to briefly introduce the person behind the work: my professional backgroung and motivation. I graduated in psychology from the Faculty of Education and Psychology of Eötvös Loránd University. During my undergraduate years, I became deeply interested in the human emotional attitudes toward death and the cultural embeddedness of the concept of the end of life. I wrote my thesis on the Eastern and Western cultural peculiarities of the attitudes towards death and dying. This interest led me to the field of oncology, where people, even in the case of a well-curable disease, face the threat of demise. I was blessed to work with outstanding professionals who help people in the fight against cancer at the National Institute of Oncology, Budapest, from 2012 to 2020. As a psychologist, I was a member of two teams at the hospital: a multidisciplinary team at the Department of Surgery and a Psycho-Oncology Team at the Department of Rehabilitation. I worked with bed-bound patients in the ward, outpatients, and their relatives as well. Furthermore, I participated in the hospital's research and education programs. I was delighted to be involved in the development of a complex onopsychological training course for Hungarian professionals, which was held for the first time in Transylvania, following my initiative.

In parallel with my clinical work, I completed my training as a clinical psychologist at the University of Pécs, and in 2017, I passed the clinical psychologist board exam.

I had a growing desire to systematize my clinical, research and educational experience gained in the hospital setting and to deepen my understanding of patients by starting a systematic study; thus, in retrospect, it seems that a straight path led me to Semmelweis University, where I applied for the PhD School. My topic has funneled down to what is the psychological state of breast cancer patients in the period around the operation, what are their therapeutic preferences, and how to develop a complex rehabilitation program based on this. In order to complement my clinical experience and to ground the latter part of my topic, I applied for a Fulbright fellowship and was fortunate enough to have the opportunity to study psychosocial oncology care in three different states of the United States during 2022, thanks to Fulbright and the Rostóczy Foundation. This dissertation is intended to be the condensed essence of this thorough work.

1. INTRODUCTION

1.1. Brief overview of the dissertation topic

Breast cancer is the most prevalent form of cancer worldwide. Receiving a diagnosis and undergoing the time-consuming, physically, and emotionally demanding treatment can have a significant and complex impact on the lives of both the affected individual and their family. The experience of the "ongoing" emotional trauma and distress depends on various sociodemographic, psychological, as well as disease- and treatment-specific factors. Untreated distress can hinder cooperation with oncological treatments, thereby worsening survival and increasing mortality. In addition, unmet psychosocial needs and demands provoked by a life-threatening illness lead a considerable proportion of patients to choose complementary and alternative medicine. While this may provide benefits and a sense of active involvement in treatment for the patient, it can also pose health risks through drug interactions and potentially affect survival. Therefore, psychosocial oncological care is an essential component of primary oncological care, as established in protocols and accreditation criteria. All individuals with cancer have the fundamental right to receive psychological support. Nevertheless, this option is not universally available in all countries or hospitals. The dissertation introduction presents an overview of the disease's fundamental characteristics, emotional consequences, related use of complementary and alternative medicine, as well as psychosocial oncology care, its development, and current status. This introduction establishes the groundwork for the research conducted among Hungarian women with breast cancer, which is presented in the Methods and Results chapters.

1.2.Cancer

The term cancer is a general name for a group of systemic diseases that can affect any part of the body. It is also referred to by other terms: malignant tumor, carcinoma, and neoplasm. In cancer, abnormal cell proliferation crosses the natural cell and organ boundary, so it can spread to other parts of the body, creating a so-called metastasis. The spread of metastases is the most common cause of death from cancer. The best way to reduce the burden of cancer is through prevention and screening, as there is now a good chance of a cure if the disease is detected early and treated properly.

In 2020, nearly 20 million people worldwide were newly diagnosed with cancer, and almost 10 million died from it. With 2.26 million new diagnoses worldwide, breast cancer is the most prevalent cancer type, followed by lung cancer (2.21 million) and prostate cancer (1.41 million). (Ferlay et al., 2021; Sung et al., 2021)

1.2.1. Breast cancer

Breast cancer (BC) is a malignant growth of cells in the ducts (85%) or lobules (15%) of the breast. Early in the malignant process, when the tumor is not symptomatic yet, it is confined to the breast duct (in situ) and has minimal distant spread (metastasis). Later, these in situ cancers (stage 0) can progress and invade the surrounding breast tissue (invasive BC). Invasive cancers can spread through the lymphatic system to nearby lymph nodes (regional metastasis) or through the bloodstream to other bodily organs (distant metastasis). (World Health Organization, 2023)

1.2.1.1. Risk factors of breast cancer

BC is a multifactorial disease; its development is determined by a combination of factors, not all of which are yet fully understood. According to the current state of science, the primary risk factors are gender and age. Being female and getting older significantly raises the chances of developing BC. Additional proven risk factors are:

- inherited factors (genetic mutations: BRCA1, BRCA2, CHEK2, PALB2, etc.),
- mutations in DNA repair genes,
- hormone- and reproduction-related factors (e.g., early menarche, late menopause, prolonged use (> five years) of combined oral contraceptives or estrogen-based hormone-replacement therapy in the postmenopausal period, lower parity, older age at first birth, lack of breastfeeding, etc.),
- environmental and lifestyle factors (e.g., in-utero exposure to diethylstilbestrol, sedentary lifestyle, high BMI, alcohol consumption, smoking, etc.),
- breast-related factors (personal history of benign proliferative breast disease and higher breast density).

(Francies et al., 2020; Mátrai et al., 2015; Trayes & Cokenakes, 2021; WHO, 2023)

1.2.1.2. Stage classification and treatment of breast cancer

Breast cancer screening, imaging, and diagnosis are conducted using clinical examination, ultrasound, mammography, magnetic resonance imaging (MRI), cytology, and histology. (Becker, 2015)

The stage of BC at diagnosis is crucial for the planning and timing of treatment, and it is also a fundamental determinant of survival. Traditionally, the so-called TNM classification is used to establish the stage of the disease, i.e., the size of the tumor (T), the number of lymph nodes involved (N), and the presence of distant metastasis (M). Recently, the biological characteristics of the tumor are also included in the staging process, making the diagnosis more precise and allowing for more personalized treatments. (Edge et al., 2019)

Staging and treatment options are briefly reviewed here (Brierley et al., 2016; Kahán et al., 2020; Trayes & Cokenakes, 2021; Kahán et al., 2022; Rubovszky et al., 2022)

- Stage 0 is a non-invasive type of BC that does not affect surrounding tissue, lymph nodes, or distant organs. It can be treated with surgical removal of the tumor (lumpectomy) and radiation or surgical removal of the entire breast tissue and nipple (mastectomy). If the cancer has estrogen and progesterone receptors, patients may also receive therapy to inhibit female sex hormone production (endocrine therapy).
- Stages I, II, and III differ in the size of the tumor and the number and characteristics of metastases to the surrounding lymph nodes, but none of these stages has metastasized distantly. In the early invasive stages (I, IIa, IIb) and locally advanced stages (IIIa, IIIb, IIIc), there are three treatment phases.
    - In the preoperative phase, systemic endocrine or immunotherapy is used if the tumor expresses estrogen, progesterone, or ERBB2 (formerly HER2) receptors. Preoperative chemotherapy, also known as neo-adjuvant chemotherapy (NACT), may be administered before surgery. This is the only option if the tumor does not have any of the three types of receptors mentioned above.
    - In the surgical period, there are two options, both with similar survival rates according to research:

        - if the tumor can be removed entirely with clean margins and satisfactory cosmetic results, lumpectomy with radiotherapy is an option,
        - mastectomy.
    - In the postoperative period, possible treatments may include radiotherapy, endocrine therapy, immunotherapy, and chemotherapy.
- Stage IV BC, which means the presence of distant metastases, is treatable but not curable. Palliative care aims to improve the length and quality of life to alleviate and manage symptoms.

Although NACT is increasingly used as the first line of treatment for BC (Heil et al., 2020; Sutton et al., 2020), which means 17-40% of early-diagnosed patients (Murphy et al., 2018), surgery has historically been and still is the most common initial treatment for women diagnosed with BC (Burstein et al., 2021).

Recently, advancements in surgical techniques have resulted in more refined methods replacing radical mastectomy. Oncoplastic surgery has enabled the downsizing of breast surgeries, expanding breast-conserving procedures, and offering breast reconstruction options for women who have undergone mastectomies, either immediately or at a later date, improving quality of life. Meaning BC patients may require additional surgery following the initial procedure. (Becker, 2015; Mátrai et al., 2015)

Surgery, therefore, is a crucial first step in cancer treatment, removing tumors and providing hope for improved quality of life. Accordingly, patients' initial experiences with surgery have a profound impact on their ability and willingness to adhere to the often lengthy and arduous treatment regimen. This early stage of cancer treatment is particularly crucial, as patients are usually in a vulnerable state.

1.2.1.3. Epidemiology of breast cancer worldwide

BC is the most prevalent type of cancer worldwide. In 2020, 2.26 million people were diagnosed with BC (12% of new cancer cases), and 685 thousand died (7% of cancer deaths) globally; also, the 5-year prevalence was 7.8 million. (Sung et al., 2021)

Male BC is rare, accounting for less than 1% of BC cases, representing 0.5% of male malignancies (Campos et al., 2021; S. Fox et al., 2022). The gender breakdown may suggest that BC primarily affects women; however, it also affects those around the

women who got sick, including their husbands, co-workers, children, friends, parents, employers, and employees. The experiences, suffering, care needs, absence from work, physical changes, and mood swings of a woman struggling with BC have a direct impact on the whole of society as well. Therefore, it is essential to recognize that although BC primarily affects women, this disease of women is a disease of the entire society since its increase is linked to the economic progress of humanity.

Age-standardized incidence rate (ASIR) and age-standardized mortality rate (ASMR) are used to compare incidence and mortality case numbers between countries worldwide.

According to the World Health Organization (WHO) GLOBOCAN 2020 data, Australia and New Zealand have the highest ASIRs for BC (95.5 per 100,000) in the world, followed by Western Europe (90.7 per 100,000), Northern America (89.4 per 100,000) and Northern Europe (86.4 per 100,000). The incidence is lowest in South Central Asia (26.2 per 100,000), followed by Central Africa (32.7 per 100,000) and East Africa (33.0 per 100,000). The WHO map illustrates the incidence of BC worldwide in Figure 1.

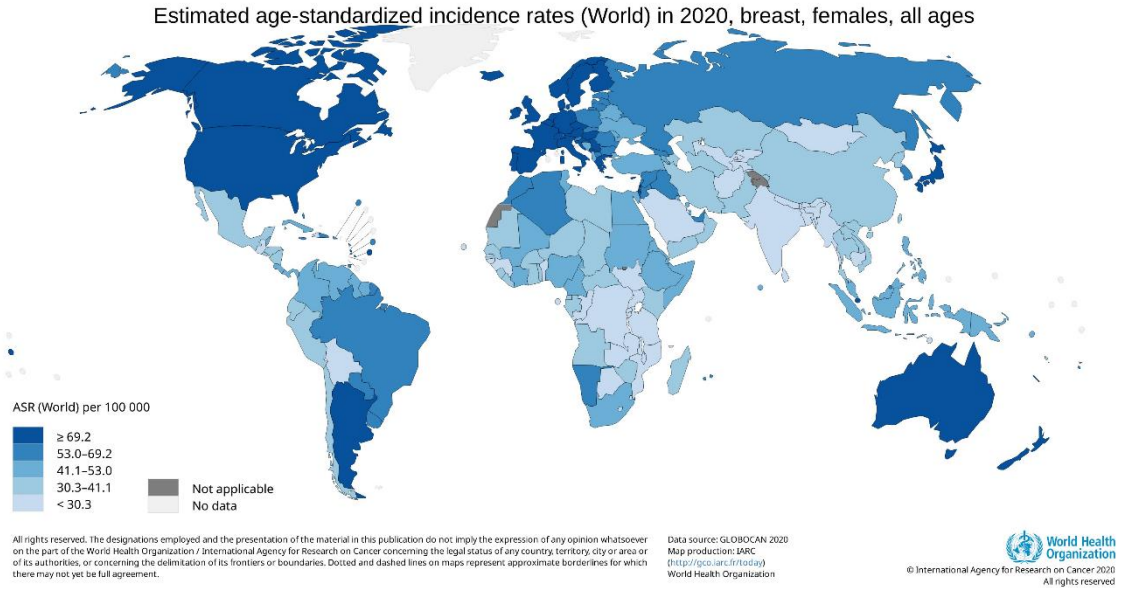

Figure 1. Estimated age-standardized incidence rates (World) in 2020, breast, females, all ages. WHO GLOBOCAN 2020 (International Agency for Research on Cancer, WHO, 2020a)

The ASMR for BC is highest in Melanesia (27.5 per 100,000), followed by Western Africa and Polynesia, with a rate of 22.3 per 100,000. The mortality is lowest in East Asia (9.8 per 100,000), followed by Central America (10.4 per 100,000) and Australia and New Zealand (12.1 per 100,000). The Central and Eastern European region is in the middle of the range for incidence (57.1 per 100,000) and mortality (15.3 per 100,000). (International Agency for Research on Cancer, WHO, 2020a)

BC mortality rates are plotted on the WHO world map in Figure 2.

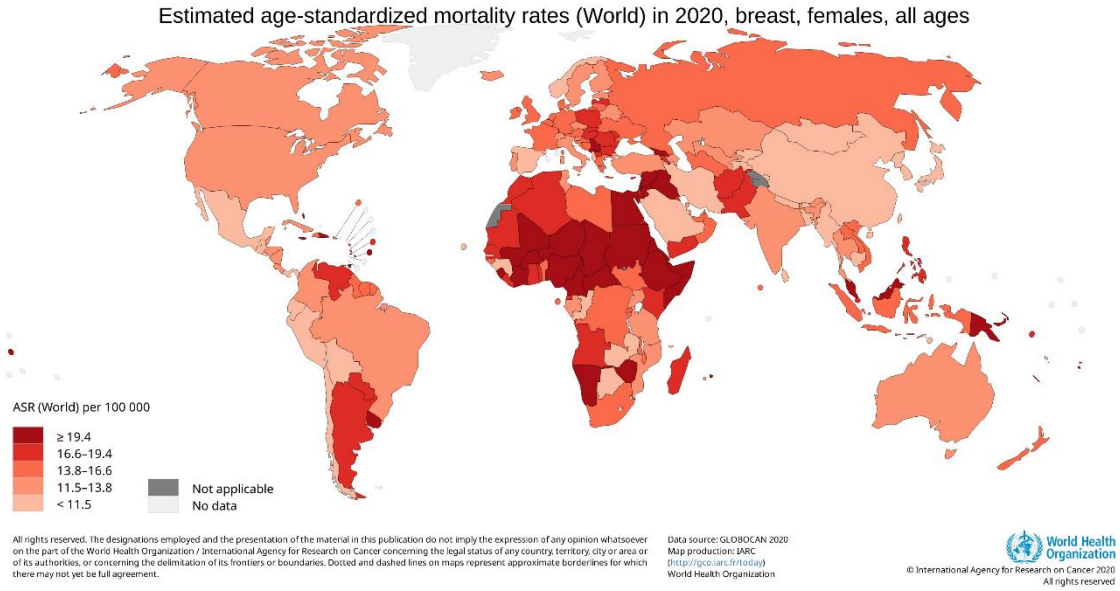

Figure 2. Estimated age-standardized mortality rates (World) in 2020, breast, females, all ages. WHO GLOBOCAN 2020 (International Agency for Research on Cancer, WHO, 2020a)

1.2.2. Epidemiology of cancer and breast cancer in Hungary

In Hungary, 66,874 new cases of cancer were diagnosed in 2020, 0.7% of the total population (9.7 million), and 32,868 individuals (0.3%) lost their lives due to cancer. The 5-year prevalence in 2020 was 186,725, meaning that 2% of the population of Hungary was living with cancer or with the aftermath of cancer and its treatment in 2020. Considering that the lifetime probability of developing cancer in the Hungarian population is more than 50% (Menyhárt et al., 2018) (i.e., half of the population will experience cancer at some point during their lifetime) and the widespread effects mentioned above, it is clear that this problem impacts the entire population of Hungary.

In Hungary, most of the new cases are lung cancer (15%), breast cancer (12%), and prostate cancer (9%). The highest numbers of deaths are from lung cancer (27%), breast cancer (7%), and pancreatic cancer (7%). (International Agency for Research on Cancer, WHO, 2020c).

Hungary is among the countries with the highest cancer rates worldwide. It had the 10th highest ASIR of cancer among all countries in the world and the fourt highest among the 27 Member States of the European Union in 2020. Regarding cancer ASMR, Hungary ranked third worldwide and first in the EU in 2020. (European Commission, 2023; International Agency for Research on Cancer, WHO, 2020b)

In Hungary, the incidence of BC was 7,565 in 2020, with 2,195 individuals dying of it, and the 5-year prevalence of BC was 29,353. The ASIR and ASMR for BC are higher than the regional average (ASIR: 77.3 per 100,000 and ASMR: 17.3 per 100,000). (International Agency for Research on Cancer, WHO, 2020c).

Between 2001 and 2015, the incidence of BC increased while mortality decreased in Hungary, indicating improved survival rates. This improvement can be partly attributed to the increased number of diagnoses at an early stage of the disease, emphasizing the effectiveness of organized BC screening as a tool for early detection. The approval of the first targeted therapy for HER2-positive BC in Hungary in 2000 has also contributed to better outcomes. However, the impact of new immunotherapeutic agents, which were only introduced in Hungary in 2016, has not been considered. Considering that no change in the survival rates for later-stage BCs was observed over this period, early detection of BC seems to be the driving factor of reduced mortality rates. (Kenessey et al., 2022)

In Hungary, population-based organized BC screening has been in place since 2002, providing biennial screening for women aged between 45 and 65. (Varga et al., 2023)

1.3.The far-reaching impact of getting diagnosed with cancer

Cancer and its treatment bring many changes to the life of the individual and her family: changes in body image and sexuality, in cognitive capacity and processes, in emotions and moods, physical changes, somatic and psychological side effects, pain, fatigue, immediate and delayed, as well as short and long-term side effects, rearrangement of relationships, isolation, stigmatization, deterioration of economic status, so-called financial toxicity (Coroneos et al., 2021; Zafar & Abernethy, 2013a, 2013b), among others. The life of the individual and her family is completely transformed, at least temporarily, following diagnosis. (Lovelace et al., 2019)

1.3.1. Emotional consequences

Facing a cancer diagnosis can induce an **emotional crisis.** Despite advancements in medical technology, the public still associates suffering, hopelessness, and death with this disease. Therefore, receiving a cancer diagnosis can make the threat to life and the possibility of death deeply personal. According to the creator of crisis theory, Caplan (1964), a crisis is a psychologically critical situation that the person is forced to face, cannot avoid, threatens their psychological equilibrium, and cannot resolve with

previously learned problem-solving strategies. The crisis is not considered a psychopathology. While a history of psychiatric problems may increase the risk of a crisis, it is essential to note that anyone can be susceptible to the experience of a crisis. It is a temporary but dangerous condition in which the psychological vulnerability of the patient and the risk of suicidal behavior may increase. A crisis is a disturbance from a previous state of relative balance, which can result in the establishment of a new balance or breakdowns and pathological reactions (neurotic symptoms, psychotic regression, suicide, etc.). Recognition and immediate and adequate crisis treatment are essential tasks for healthcare providers. (Koncz, 2019; Riskó, 1999)

A crisis that persistently exceeds the current coping capacity can lead to **psycho-trauma**. In the oncological context, it is not just a one-time psychological trauma but an "ongoing" trauma (Schwartz et al., 2010), as several traumatic experiences can occur during the cancer journey, such as learning of the diagnosis, the effects, and consequences of treatments (e.g., hair loss following chemotherapy), social stigmatization, the possibility of relapse. This succession of shocks and prolonged uncertainty can be challenging even for mature adults with resilient personalities; however, this difficulty is often compounded by somatic or mental comorbidity. The swirling, rolling trauma at all stages of the disease can make patients highly vulnerable.

Additionally, the trauma associated with somatic illness can easily lead to increased guilt as well as emotional and social isolation; as the disease "attacks" from within, it is often invisible, making it difficult to sympathize with her and share the experience. (Rigó & Zsigmond, 2015)

The psychological response to illness can vary significantly from person to person, depending on individual characteristics. However, it seems common for all patients to experience some degree of distress during their cancer journey. The definition of distress in a cancer setting, according to the National Comprehensive Cancer Network (NCCN, 2023), is as follows.

> *"**Distress** is a multifactorial unpleasant experience of a psychological (i.e., cognitive, behavioral, emotional), social, spiritual, and physical nature that may interfere with one's ability to cope effectively with cancer, its physical symptoms, and its treatment. Distress extends along a continuum, ranging from common normal feelings of vulnerability, sadness, and fears to problems that can become*

disabling, such as depression, anxiety, panic, social isolation, and existential and spiritual crisis."

The literature is inconsistent in the use of the term distress. Certain studies utilize the NCCN definition of distress and the associated Distress Thermometer (NCCN, 2023) to measure it. Since this approach does not distinguish between distress from different sources (e.g., physical, social, pragmatic, spiritual, and emotional) when measuring levels of distress, it may not be ideal for focusing on emotional symptoms. Although these issues may lead to similar emotional symptoms (e.g., anxiety), it is recognized that distress arising from untreated pain or transport difficulties requires a different approach and treatment than, for example, distress arising from fear of death. This approach, therefore, appears to be too general. Other studies use the phrase distress as an umbrella term that encompasses anxiety, depression, and other emotional symptoms. As this dissertation focuses on the emotional state of breast cancer patients, the latter approach is employed throughout the thesis.

Putting cancer-related distress into context, it must be mentioned that in 1974, János Selye distinguished between "bad", inhibiting, overwhelming stress, "distress", and "good", motivating, adaptive "eustress" (Selye, 1975, 1976). The stress response, also known as the "fight or flight" response, can be triggered by psychological, physical, or environmental factors. (Chrousos, 2009) The presence of which stressor and its intensity still constitute eustress, i.e., motivation to cope and adapt to the environment, and what acts as inhibiting distress varies from individual to individual, depending on the individual socialization, early experiences, personality, preconception, processing system, individual evaluation of the situation, and the cognitive appraisal of stressors.

1.3.1.1.The importance of distress during the cancer journey

Some degree of distress may, therefore, be considered a natural emotional response to cancer. However, studies have shown that between 20 and 61% of cancer patients (depending on the type of tumor, stage, treatment, and personal characteristics) experience clinically significant distress, i.e., requiring intervention (Fortin et al., 2021; Funk et al., 2016; Holland & Alici, 2010; Kirk et al., 2021; Mehnert et al., 2018; Nguyen et al., 2021), and between 30 and 40% are characterized by some type or combination of

mood disorders. Increased distress is a risk factor for non-adherence[1] to cancer treatment (Lin et al., 2017; Mausbach et al., 2015). In addition to difficulties in coping, untreated distress can also lead to difficulty in decision-making and impaired cognitive capacity. Specifically, heightened anxiety results in an increased number of visits to healthcare providers, causing a more significant time and responsibility commitment for the oncology staff and increased expenses for the insurance system. For people diagnosed with cancer, distress tends to lead to a lower quality of life and has a negative impact on survival. (Batty et al., 2017; NCCN, 2023; Watson et al., 2005)

1.3.1.2.Changes in distress during oncological treatment

Looking at the change in distress experienced by BC patients over time, it is observed that distress levels are higher before the onset of oncological treatment but start decreasing with the initiation of the treatment. NACT is linked to lower levels of distress as compared to surgery. Moreover, surgery leads to a further increase in distress levels, even if the patient has already received NACT. (Lacourt et al., 2023)

Elevated distress levels can be associated with inflammation (Renna et al., 2020), which can highly affect not only survival but also the effect of active treatments, e.g., can affect wound healing after surgery (Hayes & Bryan, 1984; Kiecolt-Glaser et al., 1998; Kuroi et al., 2006; Maes et al., 1998; Nukina et al., 1998)

In general, distress increases before any surgical intervention; however, the emotional and mental state before surgery can be a determinant of surgical outcome. Precisely, negative psychological factors, such as anxiety, depression, and catastrophization, may predict the severity of pain experienced after surgery (Powell et al., 2016). In women undergoing surgery for BC, preoperative distress and expectations of side effects determine the degree of postoperative pain, nausea, and fatigue (Montgomery et al., 2010).

The significant distress-increasing effect of the surgical period and the negative repercussions of high distress in the perioperative period merit more attention to better outcomes. (Riskó et al., 2015, 2019)

[1] According to the WHO (World Health Organization, 2003), adherence is defined as “the extent to which a person’s behavior – taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a health care provider”.

1.3.1.3. Correlates of BC patients' distress in connection with surgery

The global prevalence of anxiety among BC patients is 42% (Hashemi et al., 2020). The majority of patients endure moderate to high levels of preoperative anxiety, which resolve after the operation (Bárez et al., 2008; Burgess et al., 2005; Gallagher et al., 2002; Henselmans et al., 2010; Millar et al., 2005; Parker et al., 2007; Vahdaninia et al., 2010). The variables associated with increased preoperative anxiety are presented in Table 1.

Table 1. Correlates of increased preoperative anxiety

Factors associated with increased anxiety before surgery	References
elevated depressive symptoms, uncertain vision of the future, weaker sense of control, lower life satisfaction, and difficulty coping	(Kyranou, Puntillo, Dunn, et al., 2014)
being divorced, as well as the persistent presence and high levels of fatigue	(Cai et al., 2022)
younger age	(Bidstrup et al., 2015; Epping-Jordan et al., 1999; Härtl et al., 2010; Parker et al., 2007)
having children	(Dean, 1987)

The global prevalence of depression among BC patients is 32% (Pilevarzadeh et al., 2019). Before surgery, BC patients experience moderate to high levels of depression (Hegel et al., 2006; Kyranou, Puntillo, Aouizerat, et al., 2014; Özalp et al., 2003; Vahdaninia et al., 2010), which is also relieved after surgery (Gallagher et al., 2002; Henselmans et al., 2010; Hinnen et al., 2008; Lam et al., 2007; Lam et al., 2010; Millar et al., 2005; Parker et al., 2007; Vahdaninia et al., 2010). The variables associated with increased preoperative depression are presented in Table 2.

Table 2. Correlates of increased preoperative depression

Factors associated with increased depression before surgery	References
new diagnosis and sleep disturbance	(Cai et al., 2022)
adjuvant chemotherapy, greater fear of metastasis, higher trait anxiety, sleep disturbances, changes in appetite, pain, and attention problems	(Kyranou, Puntillo, Aouizerat, et al., 2014)
younger age	(Avis et al., 2013; Härtl et al., 2010; Parker et al., 2007; Rottmann et al., 2016; Schlegel et al., 2012)
parenting	(Deshields et al., 2006; Lindviksmoen et al., 2013; Schlegel et al., 2012)
single	(Lam et al., 2007; Schlegel et al., 2012)

married	(Dean, 1987; Kyranou, Puntillo, Aouizerat, et al., 2014)
low quality of the relationship and insufficient social support	(Cai et al., 2022)
lower education	(Bidstrup et al., 2015; Cai et al., 2022; Lindviksmoen et al., 2013; Torres et al., 2013) While other studies have not found an association with education (Epping-Jordan et al., 1999; Vahdaninia et al., 2010)
financial status and perceived economic hardship	(Mazanec et al., 2021)
unemployment	(Agarwal et al., 2013)
lower income	(Chan et al., 2020; 2022; Tu et al., 2022)
insurance, transportation, and housing issues	(Liu et al., 2022)

For BC patients, many aspects of their financial situation have a compounding effect on the level of distress they experience. There is accumulated evidence that it is not only the baseline socioeconomic situation but the financial burden trajectory the disease and its treatment cause and the treatment cost-associated distress ("financial toxicity") also highly related to lower quality of life and higher distress (Coroneos et al., 2021; Kong et al., 2020; Offodile et al., 2021; Rosenzweig et al., 2019; Zafar et al., 2013; Zafar & Abernethy, 2013a, 2013b).

Clinical correlates of distress

Research results are inconsistent regarding associations between clinical characteristics and distress experience. In some studies, the size of the tumor and disease stage showed a positive association with psychological distress (Gallagher et al., 2002; Vahdaninia et al., 2010), while other results showed no such association (Epping-Jordan et al., 1999; Härtl et al., 2010; Lam et al., 2007). Women who did receive chemotherapy and women who did not receive radiotherapy were more likely to experience the most severe distress (Bidstrup et al., 2015). Regarding the type of surgery, some studies found no difference in the psychological state of women undergoing lumpectomy and mastectomy (Härtl et al., 2010; Koncz et al., 2015; Lam et al., 2007; Millar et al., 2005; Parker et al., 2007). Other studies showed that mastectomy has more negative effects on body image, social functions, sexual health, and quality of life compared to breast-conserving surgery (Al-Ghazal, Fallowfield, et al., 2000; Al-Ghazal, Sully, et al., 2000; Monteiro-Grillo et al.,

2005), and mastectomy was associated with higher psychological distress (Al-Ghazal, Fallowfield, et al., 2000; Berhili et al., 2019). Mastectomy with immediate breast reconstruction was associated with higher levels of anxiety and depressive symptoms than delayed reconstruction (Roth et al., 2005). According to another study, women undergoing immediate reconstruction were more satisfied with the outcome of the surgery and its aesthetic consequences and had better self-esteem. No significant difference was found between depressive symptoms and anxiety levels among the two groups. (Al-Ghazal, Sully, et al., 2000) In addition to the contradictory results associated with types of mastectomy, lumpectomy appears to be the psychologically most tolerable intervention (Rowland et al., 2000).

Self-Rated Health

Self-Rated Health (SRH) is a subjective self-assessment of an individual's health status. Since Suchman and colleagues' 1957 finding (Suchman et al., 1957, p.232) that "self-ratings of health measure something different than physician's ratings – what we have called 'perceived' or 'subjective' health as opposed to 'actual' or 'objective' health – but that depending upon one's hypothesis such a self-rating may or may not be valid," SRH has been used to measure health in hundreds of studies. There is also considerable scientific evidence on its predictive power about health outcomes and mortality.

Jylha (2009) provided a detailed analysis of the complex process by which SRH is generated. SRH emerges from bodily sensations perceived exclusively by the individual, consciously or unconsciously, but are nonetheless aggregated and whose perception, selection, and interpretation are primarily determined by sociocultural context and psychological factors. Garbarski grouped the myriad factors that determine research participants' responses to questions about SRH into four broad categories: Health, Psychological, Social, and Survey Measurement Factors (Garbarski, 2016).

Self-rated health is an independent predictor of mortality (Benyamini, 2011; Idler & Benyamini, 1997), and its predictive power has risen over the past decades (Schnittker & Bacak, 2014). In the short term (>10 years), SRH was found to be as accurate a predictor of mortality in older people as costly and time-consuming multimodal objective health assessment (Wuorela et al., 2020). The difference between objective and subjective health status assessment may contribute to the prediction of mortality (Ruthig et al., 2011).

Idler and Benyamini explained why SRH is a strong predictor of future health outcomes with four possible mechanisms: (1) SRH is more comprehensive than the variables used in other studies; (2) SRH is a dynamic assessment that evaluates the evolution of health status, not just the current health status at one point in time; (3) SRH influences behaviors that subsequently affect health status; and (4) SRH reflects resources that reflect or even influence the ability to cope with health threats. (Idler & Benyamini, 1997)

The strong association of SRH with mortality has also been demonstrated in the Hungarian general population. (Kopp et al., 2004)

There is a 46% higher risk of death in women with BC who have increased distress. Compared with women in good health, women who rated their health as poor or fair also had a significantly increased risk of death. (Adeyemi et al., 2021)

BC patients tend to rate their health as good or very good during their cancer journey—however, life events, lower education, and chemotherapy influence concurrent and retrospective Self-Rated Health. (Jakobsson et al., 2021)

Psychological correlates of distress

Additionally, individual psychological characteristics can also determine the degree of distress before or after surgery, such as personality traits (Hinnen et al., 2008; Millar et al., 2005), coping mechanisms (Epping-Jordan et al., 1999; Stanton et al., 2005), perceived social support (Gallagher et al., 2002), sense of control (Bárez et al., 2007; Gallagher et al., 2002; Henselmans et al., 2010), illness perceptions (Millar et al., 2005).

It is also known that a positive psychiatric history (Gallagher et al., 2002) or elevated preoperative distress has an adverse effect on post-operative psychological (Deshields et al., 2006; Gallagher et al., 2002; Lam et al., 2007; Millar et al., 2005), and physical (Montgomery et al., 2010) outcome.

Patients with substance abuse and psychiatric diagnoses encounter increased complications, prolonged hospitalization, and higher average costs (Fox et al., 2013).

In some cases, psychological distress tends to persist even after surgery. High levels of distress are associated with depression, nervousness, and pain symptoms after a BC surgical procedure (Park et al., 2017)

Social Support

The effects of social support, i.e., instrumental, informational, or emotional support in significant relationships, have been extensively studied in the psychological literature. The buffering effect of social support against the adverse effects of stressors is well known: in stressful life situations that exceed one's ability to cope, social support can modulate and reduce the level of distress experienced by the individual. (Cohen & Wills, 1985; Dean & Lin, 1977; Lazarus & Folkman, 1984; Thoits, 2011)

Social support research distinguishes between perceived social support (PSS) (a person's subjective perception of the level of support that would be available to them if needed) and enacted support (the intention of social network members to provide support). Studies show that perceived social support has a predominantly positive effect, while results on enacted support are less clear. (Arnberg et al., 2012; Cranford, 2004; Cummins, 1988; Schwarzer et al., 1994)

Perceived social support has been shown to play an essential role in the survival of women with BC (Maunsell et al., 1995), as well as in the positive adjustment to cancer (Dukes Holland & Holahan, 2003), and helps reduce death anxiety (Bibi & Khalid, 2020).

Women who are socially isolated before diagnosis may have up to twice the risk of mortality compared to socially integrated women (Kroenke et al., 2006).

Perceived social support also positively affects health through its impact on immune function. (Kiecolt-Glaser et al., 2010; Uchino et al., 2012)

It has also been shown in women with BC that a more robust PSS is associated with better immune function, both during and after chemotherapy. (Hughes et al., 2014; Lekander et al., 1996; Roy et al., 2021)

Coping

The onset of a severe illness significantly changes an individual's life and poses serious distress. Adapting to these changes is a complex process and requires coping skills. According to Lazarus and Launier (Lazarus & Launier, 1978), coping is any behavioral or mental effort to deal with external and internal stresses that demand or exceed one's resources. The primary objective of coping is to alter stressful situations using problem-focused coping or to sustain emotional balance through emotion-focused coping if changing the situation is not possible. These two broad categories of coping strategies can

be called active coping. The 'Transactional Model of Stress and Coping' (Lazarus & Folkman, 1984) describes the first step in the coping process as the evaluation of the stressor (positive, negative, neutral), followed by the selection of coping options and then the evaluation of the outcome. Later, another coping type was added to the two active coping types: avoidance-oriented coping, which is an attempt to detach oneself from a stressful situation (Endler & Parker, 1990). Past experiences also play an important role in coping with chronic illness, according to the Cognitive Activation Theory of Stress, which states that perceived stressors are evaluated based on past experiences of the ability to manage stress (Ursin & Eriksen, 2004).

Based on studies of adaptation to cancer, the Social-Cognitive Transition model views the process of adjustment as a learning process. Successful adjustment results from the interaction of coping style, social support, and cognitive appraisal of stressors (Brennan, 2001).

In their meta-analysis, Kvillemo and Bränström proposed a hierarchical model of coping with BC (Kvillemo & Bränström, 2014). Figure 20 in the Appendix presents their model. Engagement Coping strategies, i.e., attempts to foster adaptation to stress, are beneficial. In contrast, Disengagement and avoidance types of coping are maladaptive in dealing with BC-related stressors and are associated with poorer psychological and physical health (Kvillemo & Bränström, 2014).

Locus of Control

People differ in how they perceive a particular consequence to result from their behavior or a random occurrence. They may perceive events happening to them as being under their internal control or the control of external factors. (Rotter, 1966)

Health-related control beliefs impact health-related attitudes, emotions, coping strategies, perceived self-efficacy, and behavioral control and influence an individual's health-related behavior, thus determining their health status. (Jacobs-Lawson et al., 2011; Luszczynska & Schwarzer, 2005; Masters & Wallston, 2005; Schäfer et al., 2003; Wallston et al., 1994)

Initial studies focused on internal and external control (Wallston et al., 1976). Subsequent multidimensional studies uncovered three dimensions of health-related control beliefs: internal, chance, and powerful others (Wallston et al., 1978). In the two forms of external

control, individuals believe that their health depends mainly on luck or other people. The concept of internal control suggests that individuals believe they significantly impact their health.

Internal control is linked to positive health behaviors and emotions. In contrast, external control is related to anxiety, depression, a lower quality of life, and unhealthy behavior (smoking, alcohol consumption, unhealthy eating, and less physical activity). (Brown et al., 2015; Marks et al., 1986; Norman et al., 1998; Panagiotou et al., 2014)

Health-related control beliefs also play a role in regulating health behavior (Yi & Kim, 2013) and show associations with quality of life, anxiety, and depression (Pahlevan Sharif, 2017) among women with BC.

1.3.1.4. The distress experience of Hungarian women with breast cancer

In general, Hungarian cancer patients' financial situation, social support, depression, and anxiety levels, as well as the presence of suicidal ideation, are significantly worse than in the general population. (Muszbek et al., 2006; Rohánszky et al., 2014)

Some studies have focused on the psychological characteristics of women with BC. The attachment style was examined in a psychological study of the Hungarian BC population. Most patients' attachment pattern was characterized by avoidant attachment. They also reported poorer self-rated health status and lower levels of relationship and sexual satisfaction compared to healthy women. (Désfalvi et al., 2020). A sizable hypnosis intervention study was conducted on BC patients undergoing chemotherapy, with accompanying documentation of their psychological state throughout the study (Vargay, 2019; Vargay et al., 2019; Zsigmond et al., 2019). According to the results of another study conducted during radiotherapy, negative affectivity and dysfunctional illness cognitions have the most significant impact on the quality of life of patients with BC (Kovács Z. et al., 2017).

Only three studies have examined psychological functioning in Hungarian women with BC undergoing surgery. In a 2016 study of 101 female BC patients, raised pre-operative anxiety levels decreased following surgery. The study also revealed that elevated preoperative anxiety was linked to more significant postoperative pain and that older patients experienced higher anxiety and lower social support following surgery. (Kriston, 2016)

In 2019, an intervention study with 50 BC patients indicated significant pre-operative anxiety levels and mild depression. (Wittmann et al., 2019). Finally, a 2017 study of 63 Hungarian BC patients showed relatively low, albeit stable levels of depression from pre- to post-surgery, while high pre-surgery anxiety decreased after the operation and increased again 18 months after surgery. (Wittmann et al., 2017) Two of the three studies were published in Hungarian only, limiting their contribution to international knowledge on perioperative distress in Hungarian BC patients. Furthermore, none of the studies investigated associations between distress and clinical parameters.

1.3.1.5. Missing data on the levels of distress experienced by Hungarian breast cancer patients during the perioperative phase

Seeing the importance of distress experienced by cancer patients in determining survival, quality of life, and surgical recovery, it is a severe gap that no studies have been conducted in Hungary to investigate the level of distress and its correlates in Hungarian women with BC during the surgical period.

As there is a significant lack of data in Hungary and across Central-Eastern Europe regarding the psychological symptoms experienced by women with BC during the surgical period, our study aims to fill this gap.

1.3.2. Breast cancer patients' unmet psychosocial needs

Being diagnosed with BC and its treatment affect all aspects of the patient's life, both in the short and long run. Adapting to such extensive and fluctuating changes requires considerable external and internal resources, and this process is accompanied by considerable distress, the degree of which also fluctuates according to the challenge. One in two women with BC experience clinical distress, i.e., distress requiring intervention, during their cancer journey, but not all of them have access to the help they need. Indeed, some proposals suggest that all women should be offered psychological counseling after diagnosis (Al-Azri et al., 2009).

Since psychosocial oncology care (discussed in more detail in Section 1.4.) was introduced, various psychological interventions have proven effective in decreasing emotional and mental distress, managing psychological symptoms, reducing some physical symptoms (e.g., pain), alleviating body image issues, and bolstering the quality

of life for BC patients. They support patients' adherence to oncological treatments, examinations, and follow-up, which could impact their survival. (Al-Alawi et al., 2022; Badger et al., 2020; Dinapoli et al., 2021; Guarino et al., 2020; Jassim et al., 2023; Mustafa et al., 2013; Olsson Möller et al., 2019)

Unmet psychological needs may result in a lower quality of life and impact the survival of women diagnosed with BC (Edib et al., 2016; B. W. Park & Hwang, 2012). A quarter of BC patients may have unmet psychosocial support needs associated with clinical depression and distress (Luutonen et al., 2011).

When confronted with a potentially life-threatening illness, individuals often take all possible measures to regain their health. Therefore, they may pursue options to address their unmet needs. Cancer survivors with unmet needs are more likely to use Complementary and Alternative Medicine (CAM) than those who do not have such unfulfilled demands (Mao et al., 2008; Paltiel et al., 2001), and the most frequently cited reason for using CAM is the desire to alleviate distress (Lengacher et al., 2006).

CAM use among cancer patients is a complex issue, which will be discussed in the next section.

1.4. Complementary and Alternative Medicine

1.4.1. Definitions of CAM

The US National Center for Complementary and Integrative Health (NCCIH) provides the most used definition of Complementary and Alternative Medicine (CAM) in the global literature. According to NCCIH, *complementary* refers to the methods or preparations used alongside conventional Western medicine based on scientific methods, whereas *alternative* refers to those used instead of conventional Western methods. NCCIH has introduced the term *"integrative health"*, which combines conventional and complementary approaches for treating the whole person. It emphasizes the coordinated use of multiple interventions, such as medication and acupuncture, to achieve well-rounded care among providers and institutions (NCCIH, 2023).

The definition of conventions and the complex process of therapy choice are culturally embedded and determined phenomena (Zörgő et al., 2016, 2018).

According to the World Health Organization (WHO, 2023), in many countries, the terms complementary medicine (CM) and traditional medicine (TM) are used interchangeably.

WHO defines "complementary medicine" and "alternative medicine" as a variety of healthcare practices that are not part of a country's conventional medicine and are not fully integrated into the mainstream healthcare system. Traditional medicine (TM) has a rich historical background. It encompasses all the expertise, abilities, and practices grounded in the given cultures' theories, beliefs, and experiences – regardless of whether they are explainable. These practices aid in maintaining good health and preventing, diagnosing, improving, or treating physical and mental illnesses. By merging the two terms, the WHO has created the term Traditional and Complementary Medicine (T&CM), which includes products, practices, and practitioners. This definition refines and nuances the previous CAM designation by placing these practices in a historical context by introducing the term traditional medicine. Furthermore, the WHO strategy for traditional medicine involves comprehending and utilizing the potential benefits of TM for health, wellness, and patient-centered healthcare. This includes regulating, researching, and integrating TM products, practitioners, and practices into the healthcare system safely and effectively. (World Health Organization, 2013)

In addition to the strategy documents, the intention of integrating non-conventional treatments into conventional care can also be observed in clinical practice. For example, in the USA, several Comprehensive Cancer Centers have already established Integrative Medicine Departments, which complement conventional oncological treatments with non-pharmacological, non-mainstream interventions that have been shown evidence to have a positive impact on the patient's quality of life (e.g., acupuncture, yoga, aromatherapy, etc.).

There are various CAM use correlates on the cancer patient side, which will be discussed later. However, Hammond and colleagues (Hammond et al., 2023) shed light on the moral dilemma and emotional distress clinicians experience when a patient uses ineffective or even harmful CAM that consumes a significant amount of money but provides them and their caregivers with hope and comfort. This moral distress has motivated the creation of a new concept, Potentially Unsafe Low Evidence Therapies (PULET), which helps to separate unsafe procedures from CAM methods and thus supports open and professional communication about patients' treatment choices while respecting their autonomy and needs.

However, as there is no hospital department of this kind in Hungary, and there is no noticeable effort to integrate CAM or TM into conventional medicine, nor any meaningful scientific discourse to distinguish between the different modalities, either in terms of safety or otherwise, therefore, in this dissertation the somewhat outdated term CAM is used deliberately instead of the more modern terms integrative medicine or PULET. As discussed earlier, it is impossible to define CAM without the specific cultural context, so in this thesis, the definition is based on the Hungarian health culture and formulated in the context of local specificities (see more details in section 3.3.).

In Hungary, according to the Act CLIV of 1997 on Health Care in force, § 104(2): "non-conventional procedures are based on a different approach to health and disease, on methods that are different from conventional, scientifically based procedures, which, as defined in a separate law, are complementary to, substitute for conventional methods, and lifestyle improving procedures. Non-conventional methods may be used as substitute methods only under medical supervision."

According to the Medical Section of the Hungarian Academy of Sciences (A Magyar Tudományos Akadémia & Orvosi Tudományok Osztálya, 2011), the main difference between conventional and non-conventional medicine is that while conventional medicine is required by law and society to prove its efficacy and safety, non-conventional medicine is exempt from these obligations, which may pose serious risks to patients. According to the Medical Section, CAM is a set of therapeutic and diagnostic procedures not part of conventional Western medicine.

1.4.2. Modalities of CAM

CAM can be classified in various ways. The Medical Section of the Hungarian Academy of Sciences divides CAM into three main categories (A Magyar Tudományos Akadémia & Orvosi Tudományok Osztálya, 2011), which are

1) professionally organized alternative therapies (e.g., acupuncture, nutritional science, homeopathy, herbal medicine);
2) complementary therapies, which are intended to complement the methods of medicine and do not involve diagnostic procedures (e.g., Alexander Technique, aromatherapy, Bach Flower Therapy, movement therapies including massage, spiritual help, stress management, hypnotherapy, meditation);

3) Alternative disciplines that include both diagnostic and therapeutic procedures:
    a. Established traditional health systems (e.g., anthroposophical medicine, Ayurveda, natural remedies, traditional Chinese medicine)
    b. Other alternative disciplines (e.g., crystal therapy, kinesiology, aura healing).

A curious contradiction arises in the Medical Section's approach as it deems the lack of scientific evidence to be the main characteristic of non-conventional therapies. Nevertheless, in their classification of such treatments, CAM includes procedures that exhibit scientific evidence, such as hypnotherapy and stress management. Additionally, the section uses unclear terms like "psychological help" that closely resemble psychotherapy, a subfield of psychology with substantial scientific evidence.

According to the NCCIH, the following categorization is recommended for CAM modalities by their primary therapeutic input (how the therapy is taken in or delivered), as opposed to the three categories previously used (natural products, mind-body practices, and other) (NCCIH, 2023).

- Nutritional (e.g., special diets, dietary supplements, herbs, and probiotics) - encompass what NCCIH formerly classified as natural products,
- Psychological (e.g., mindfulness) - incorporate what was formerly known as mind-body practices.
- Physical (e.g., massage, spinal manipulation)
- Combinations such as psychological and physical (e.g., yoga, tai chi, acupuncture, dance, or art therapies) or psychological and nutritional (e.g., mindful eating)
- Other (e.g., traditional healers, Ayurveda, traditional Chinese medicine, homeopathy, naturopathy, and functional medicine)

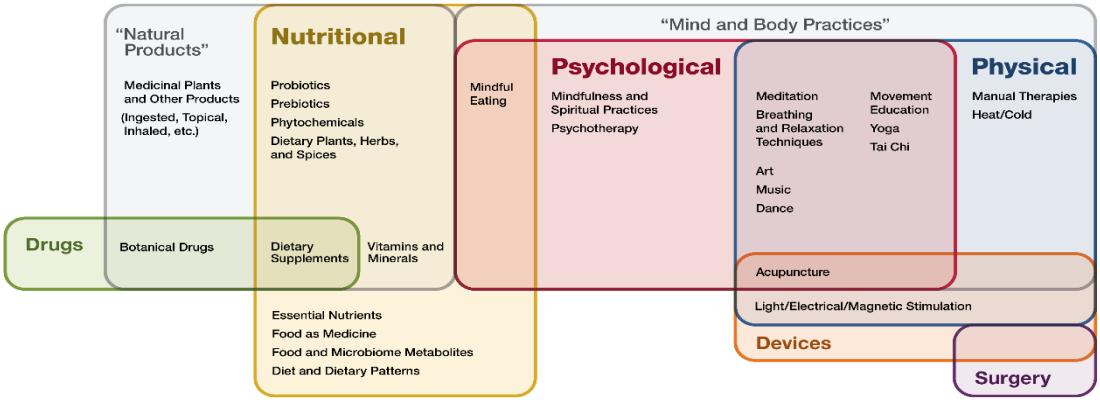

Figure 3. Examples of complementary health approaches. (NCCIH, 2023)

Notably, the NCCIH's classification is that it has recently renamed the former body-mind methods as psychological methods, which is precisely the discipline that exists and evolved out of Western conventional medicine. The psychological term is comprehensible regarding the method's input, but it may be deceptive within the CAM basic definition since these methods are outside of conventional procedures. Moreover, this category is exemplified by the mindfulness method, which was also developed within Western conventions. While it drew inspiration from ‘Eastern meditation practices, it has been modified to suit Western culture's approach and efficacy.

The name of the nutritional category can also be misleading if the relation of the given method to conventional medicine is considered the basic definition criterion of CAM. Since nutrition science is part of Western conventional medicine, it cannot be a complementary procedure.

Noticeably, definitions that rely on the association with conventional medicine, the standard of scientific rigor, and the corresponding categorization efforts are rather unstable.

Section 3.3 presents the definition of CAM established for this dissertation due to definitional uncertainties in the literature.

1.4.3. CAM use among cancer patients

When comparing research findings on the prevalence and characteristics of CAM use internationally, it is essential to consider the challenges associated with defining CAM, as discussed previously. The current data suggest that 25%-80% of cancer patients use CAM (Alsharif, 2021). Variables related to CAM use in cancer patients are younger age, female gender, and higher education. The main reasons for choosing CAM are primarily that patients want to improve their physical, psychological, and general well-being; to strengthen their immune system; to support their body in fighting cancer; and reduce the side effects of cancer or treatments and taking control (Jones et al., 2019; Keene et al., 2019; Wode et al., 2019).

20% - 77% of cancer patients do not disclose their CAM utilization to their physicians. The primary reasons for non-disclosure are the physician's perceived indifference towards the topic, the patient's belief that the practitioner would disapprove or be disinterested in CAM, or the patient's conviction that CAM use is irrelevant to conventional treatment.

However, discussing CAM improves the relationship between patient and doctor and increases patient satisfaction. (Davis et al., 2012)

A study examined the content of audio recordings of consultations between 61 oncologists and 529 patients. In 62 cases (12%), CAM was mentioned. The consultations lasted an average of 6 minutes, and CAM was discussed for an average of 78 seconds. During consultations discussing CAM, both the patient and the doctor made more psychological statements. The consultations were more patient-focused and led to higher patient engagement, as well as more positive emotions displayed by both parties. (Tilburt et al., 2019)

1.4.4. CAM use among breast cancer patients

Among women diagnosed with BC, 45% use CAM (Molassiotis et al., 2006), and among young women with BC, the rate is 62.5% (Hammersen et al., 2020).

CAM users tend to be younger, have higher education and income, as well as social status, and live in urban areas. They have received multiple combined treatments for their cancer. Those who have undergone surgery or chemotherapy are more likely to use CAM. Radiotherapy has shown no association with CAM use in some studies (Fouladbakhsh et al., 2005). However, chemotherapy received had the strongest association with CAM utilization. (Fremd et al., 2017; Hammersen et al., 2020; Molassiotis et al., 2006; Pedersen et al., 2009; Tautz et al., 2012; Wanchai et al., 2010). CAM users are also more likely to have been diagnosed with cancer for longer, to be at a more advanced stage of the disease, and to have higher levels of distress. (Stöcker et al., 2023) However, those who perceive their own prognosis as worse are more likely to use CAM (Nagel et al., 2004). Lack of metastasis at diagnosis (Fremd et al., 2017) and lack of comorbidity (Pedersen et al., 2009) also correlate with more likely CAM use.

The reasons behind CAM utilization among women with BC are mainly to improve general health and well-being, to reduce side effects of systemic treatments and boost the immune system, to support conventional medicine (Hammersen et al., 2020), and to reduce symptoms of psychological distress, dissatisfaction with conventional medicine, and regain a sense of control (Lengacher et al., 2006). Feeling hopeless is also significantly associated with higher CAM use. (Akyuz et al., 2019).

The most commonly used CAM in this patient population is herbal remedies, dietary supplements, vitamins, relaxation, and spiritual therapies (body-mind), followed by whole healing systems and, finally, energy medicine (Hammersen et al., 2020; Tautz et al., 2012; Wanchai et al., 2010). On average, €50 is spent on non-conventional medicines or treatments per month in Western Europe (Hammersen et al., 2020; Wode et al., 2019). The majority of CAM users consider it to be helpful (Stöcker et al., 2023).

Their most important sources of information are family and friends, media, including the internet, and health professionals, including nurses and GPs (they are more likely to discuss the issue with their GP than their oncologist) (Molassiotis et al., 2006; Tautz et al., 2012; Wanchai et al., 2010). However, some studies show that more than half of BC patients do not mention the issue to their oncologist. They do not talk to their oncologist about CAM because he or she did not ask (25%) or because the patient did not think the impatient doctor was the right person to discuss it with (11%) (Hammersen et al., 2020; Lengacher et al., 2006; Quandt et al., 2009; Tautz et al., 2012; Thomson et al., 2014; Wanchai et al., 2010). However, the use of specific CAM modalities can pose hazards for cancer patients as they may increase a patient's bleeding risk or, via drug-drug interactions, potentially alter the absorption of chemotherapy, which could reduce the effectiveness of the oncological medicine or result in exposure to toxic side-effects of the chemotherapy (Rockwell et al., 2005). 38% of women with BC receiving adjuvant endocrine therapy are taking herbal medication that has the potential to interact with endocrine therapy (McLay et al., 2012).

1.4.5. CAM use among Hungarian breast cancer patients

There is a lack of data on the use of CAM by Hungarian women with BC. Previously, only one study has investigated the use of these non-conventional modalities among BC patients in the country. According to the results of the cross-sectional survey of 135 patients (Sárváry & Sárváry, 2019), 53% used CAM before BC diagnosis, and after diagnosis, this percentage increased to 84%. Before and after diagnosis, vitamins/minerals (37%, 60%) and herbs (32%, 79%) were the most used agents. Before diagnosis, CAM was used more by highly educated and urban women, whereas at the time of treatment, it was used more by women with higher incomes. Apart from Sárváry's

and our study (Koncz et al., 2022), the results of which are presented in detail in this thesis, no research in Hungary has measured CAM use among patients with BC.

1.4.6. Perception of CAM among Hungarian healthcare providers

CAM has a controversial reputation among healthcare professionals, suggesting a hierarchical structure: complementary medicine is generally considered "acceptable" or "tolerated." In contrast, alternative medicine is deemed "unacceptable" or "not recommended" and sometimes considered quackery. In a qualitative study of 45 practicing physicians in Hungary, using semi-structured interviews, more than half of the doctors are cautiously accepting CAM, although they do not use it themselves, but are open to their patients' requests. A quarter rejects CAM altogether, and 18% accept and use it in their practice, advocating integrative medicine. (Zörgő & Győrffy, 2016)

The picture among Hungarian surgical nurses is somewhat different. In a quantitative study using an anonymous, paper-based questionnaire with 119 participants, 68% are interested in CAM, 71% want to use it in their daily work (mainly those who use CAM themselves), only 25% consider themselves well-informed, and 61% desire to learn about CAM. (S. Soós et al., 2017)

Based on a quantitative survey of patients awaiting elective surgery (anonymous questionnaire, 519 participants) Hungarian general surgical patients show a strong interest (64%) in unconventional medicine, and a quarter of them use such treatments during surgery, but only 13% discuss this with their doctor. (Soós et al., 2016)

Hungarian oncologists' perception of CAM has not yet been studied.

1.4.7. Highlighting the association between CAM use and distress in BC patients

CAM use in women with BC is strongly associated with heightened psychosocial distress (DiGianni et al., 2002; Stöcker et al., 2023) and feelings of hopelessness (Akyuz et al., 2019). The reasons behind CAM utilization involve improving well-being (Hammersen et al., 2020) and reducing symptoms of psychological distress (Lengacher et al., 2006).

However, as CAM is not proving effective in meeting psychosocial needs (Wu et al., 2023), patients may need appropriate psychological interventions to manage their psychological issues (Kim & Kang, 2022).

The following section introduces the field of psychosocial oncology care.

1.5. Psychosocial Oncology[2]

1.5.1. Definition

According to Jimmie Holland, considered one of the founders of psychosocial oncology, this field is a sub-specialty of oncology and deals primarily with two main dimensions of cancer: the impact of cancer on the psychological functioning of the patient, relatives, and healthcare providers, and the role of psychological and behavioral factors in cancer development and survival. (Holland & Weiss, 2010)

Building on Holland's definition, Ágnes Riskó (2015), a pioneer of the field in Hungary, says that psychosocial oncology is concerned with the psychological and social burden, characteristics, and overall care of patients with cancer, their relatives, and healthcare providers, extending its scope to targeted research, dissemination and implementation of current psychosocial interventions, psychosocial prevention, and education at both individual and societal levels.

As cancer and its treatment affect all aspects of a person's life, their support must be multimodal as well. Psychosocial oncology is, therefore, only one modality of support for individuals and their caregivers and is part of the complex oncological rehabilitation[3], which ideally starts at the time of cancer diagnosis and covers all areas of the patient's life that have been impaired or adversely affected by cancer or its treatment. It is carried out by a multidisciplinary team in a personalized, organized, and planned way, with the patient's active participation and, if necessary, in collaboration with palliative care. It accompanies the patient through the treatment process until recovery or gradually transitions to hospice care in case of deterioration. (Kahán et al., 2022; Koncz, 2023; Kovács P. et al., 2017)

[2] In the international literature, the term "Psycho-Oncology" used to be common. However, with the field's evolution and conceptual background clarification, "Psychosocial Oncology" is now the more commonly used term. In Hungary, both the terms "psycho-oncology" and "oncopsychology" are used, and they will be used as synonyms interchangeably in this dissertation, especially in the historical overview. However, throughout my thesis, I prefer the more current term "psychosocial oncology care."

[3] It is important to note that the term rehabilitation is used differently in different countries. While in the USA it mainly refers to physical interventions and objectives, in Europe, including Hungary, it refers to a broad range of interventions to help the person with the disease, covering all aspects of the individual's life, and therefore rehabilitation can include social, psychological, financial, nutritional and exercise support.

1.5.2. A brief history of a young field and its organizations - an international overview

Holland and Weiss (Holland & Weiss, 2010) and Riskó (1999, 2015) give a detailed account of the international and national history of psychosocial oncology. Without claiming to be complete, their work will be outlined here.

Even in the 1800s, a cancer diagnosis was often considered a death sentence, as there were few treatment options. Consequently, doctors commonly avoid disclosing the diagnosis to the patient, instead choosing to inform family members only. Later, surgical procedures and radiation therapy became possible with medical advancements from the 1900s. During World War II, a derivative of mustard gas was found to have anti-tumor effects, leading to the use of drug treatment to treat cancer. This breakthrough allowed for the first remissions in acute leukemia patients. In addition, psychosomatic and psychodynamic therapies have become more widespread. Quoting Riskó (2015 p. 244) on the parallel professional developments:

> *'Research had been launched to prove the now well-overdue "cancer predisposing personality" and the cancer-causing effect of so-called "life events". As little definite information was yet available on the causes of cancer, psychological explanations (which added to the feelings of guilt) were welcomed by both patients and their relatives to reduce the uncertainty that was so difficult to tolerate.'*

In 1951, the first clinical and research team led by psychiatrists began to work at Memorial Sloan-Kettering Cancer Center in New York City.

Medical advancements in the 1950s and 60s highlighted the importance of informed consent for cancer treatment, which required transparent communication. By this time, the presence of psychiatrists and psychologists in medical wards was becoming more accepted. Research had previously been mainly theoretical and difficult to verify, focused on psychological factors in the etiology of cancer, and lacked the collaboration of medical and psychiatric professionals. It began to be replaced by verifiable, quantitative studies that examine the relationship between physiological and psychological phenomena. This led to the development of two branches of psychosomatic medicine relevant to cancer treatment: psycho-neuro-immunology and liaison psychiatry. Psycho-neuro-immunology explores the influence of genetic, immune, endocrine, and social environments on physical wellness, psychological symptoms, quality of life, and survival through

systematic research studies. Consultative-liaison psychiatry concentrates on comprehending and alleviating cancer patients' psychological burdens.

In the 1950s, oncologists and psychiatrists began collaborating to study the effects of hospitalization and cancer, allowing for a closer examination of the patient experience, psychological responses, and coping mechanisms. Psychiatrists and psychologists also became involved in the debate over how best to communicate a cancer diagnosis, emphasizing the harmful effects of withholding the truth about the disease. As a result of this process and the improved prospects for treatment and survival, by 1978, 97% of doctors in America were telling their patients their cancer diagnosis.

Meanwhile, the thanatology movement grew out of Elisabeth Kübler-Ross's work, focusing on the stages of dying and its impact on the individual. On the other hand, the hospice movement was developed by Cicely Saunders in England and aimed to provide better end-of-life care. These initiatives successfully achieved a more humane approach to end-of-life practices.

According to Holland, psycho-oncology began formally in the mid-1970s when the taboo surrounding the word "cancer" was broken, leading to greater openness in the communication of the diagnosis and, for the first time, exploration of patients' emotions related to the disease.

In 1976, Fritz Van Dam's efforts established the European Organization for Research and Training in Cancer (EORTC). This multi-center clinical research consortium formulated the Quality of Life Questionnaire, which is obtainable in many languages. The British Psychosocial Oncology Society was instituted in 1982. One of the earliest guidelines on psychosocial care was developed by the Canadian Association for Psychosocial Oncology, and it was there that Bultz's work gained public support for distress as the sixth vital sign that was adopted in 2004. The first national research conference on psycho-oncology in the United States was held in San Antonio in 1975. The main topic was the insufficiency of quantitative measurement tools designed for mentally ill and physically healthy individuals, which fail to measure the needs of cancer patients adequately.

Subsequently, as psycho-oncology began to be taught, the impact of the disease and of working with seriously ill patients on providers also came into focus.

The Journal of Psychosocial Oncology, founded in 1983, was the first journal to provide information on the latest research in the field. New research led to the publication of the

first psycho-oncology handbook, Psycho-Oncology, edited by Holland in 1989. The journal Psycho-Oncology was launched in 1992 with the aim of integration, as it is the official journal of the international, British, and American psycho-oncology organizations (International Psycho-Oncology Society /IPOS/, British Psychosocial Oncology Society, American Psychosocial Oncology Society /APOS/).

In 1997, the National Comprehensive Cancer Network (NCCN), an organization of 18 comprehensive cancer centers, established a multidisciplinary panel that developed the first standard of psychosocial care in cancer and clinical practice guidelines for disciplines providing supportive services. Psycho-oncology is a young but rapidly developing discipline now integral to primary oncology care.

1.5.3. The development of oncopsychology and its organizations in Hungary

Ágnes Riskó (2015) provides a summary of the names of the known pioneers of oncopsychology: Mihály Bálint psychoanalyst; Sándor Eckhardt, oncologist, Sándor Ferenczi psychoanalyst; Pál Gegesi Kiss pediatrician, child psychologist, István Hárdi psychiatrist, psychoanalyst, Miklós Kovács oncologist, Zsuzsanna Kulcsár psychologist, László Levendel, pulmonary physician, Árpád Mezei, psychologist, Erzsébet Moussong-Kovács, psychiatrist, György Németh, family doctor, Alaine Polcz, psychologist, Tibor Riskó, orthopedic surgeon, István Székács, biochemist, psychoanalyst.

In Hungary, psychiatrists and psychologists have worked in oncology since the 1960s, the vast majority being clinical psychologists[4]. In the early days, they did their pioneering work individually, in isolation. In 1988, the then Director General of the National Institute of Oncology, Sándor Eckhardt, organized the first Hungarian psycho-oncology department, initially headed by Katalin Muszbek, a psychiatrist. From the beginning, psychoanalytic and hypnotherapeutic approaches were paramount in their work, and their

[4] It is important to note that there exists a distinction in the training of clinical psychologists between Hungary and most Western countries. A Master's degree in psychology (comprising 5 years) is obtained in Hungary, followed by the possibility to apply for 4 additional years of clinical training. This training primarily concerns clinical psycho-diagnostic and fundamental psychotherapeutic skills. The clinical psychology credential permits one to serve as an independent clinical practitioner. This may be pursued by an additional two years of general psychotherapist training and varying length of method-specific trainings (e.g., psychoanalysis, cognitive and behavioral therapy, etc.). Clinical training does not provide academic knowledge or research skills, which are taught in a separate 4-year doctoral program that focuses exclusively on the acquisition of knowledge necessary for research. Thus, unlike many other countries, in Hungary, clinical psychology and doctoral degrees are obtained through distinct training programs, indicating separate career paths and skillsets, while some professionals may obtain both degrees to combine clinical and academic knowledge and practice.

working methods even included 'bedside psychosocial support', unlike the research and cognitive and behavioral therapy dominated work in Western countries.

After Katalin Muszbek resigned as head of the department in 1991, Katalin Vönöczky, a neurologist-psychiatrist, took over as the leader of the Rehabilitation Department until 2021. Currently, Orsolya Horváth, an oncologist and palliative specialist, is the head of the department. Ágnes Riskó was the first clinical psychologist to become an equal member of the oncology treatment team. Since then, following the Hungarian national clinical protocol, the clinical psychologist has become an accepted member of the oncology team at the institution. Additionally, The Professional Protocol of Clinical and Mental Health Psychology, which recognizes the clinical psychologist, psychiatrist, and social worker as members of the oncology team, was established in 1998 and remains valid today, with revisions made in 2005 (Bagdy & Túry, 2006).

Nowadays, clinical psychologists at the NIO work in two teams: they work in close collaboration with each other to run the Oncopsychology Workgroup, which was established in 2010 with the support of Ágnes Riskó and is currently led by Péter Kovács, a clinical psychologist. This group of psychologists performs educational tasks, organizes and conducts research, and participates in conferences. On the other hand, they are affiliated with somatic wards and serve as permanent ward team members, remaining available to patients from the moment of admission. They participate in the onco-team work, attend ward rounds, medical meetings, and case presentations, and offer "bedside" psychological care in the ward. Additionally, they provide psychological preparation for somatic interventions (surgery and radiotherapy), offer individual outpatient psychotherapy and relaxation groups for patients, and provide support for caregivers upon request. They work under constant professional supervision (supervisor: Ágnes Riskó 2010-2016; Annamária Tari 2017-2021; Lilla Hárdi 2021-). In addition, they focus on monitoring the psychological well-being of healthcare workers in high-stress conditions and implementing strategies to prevent burnout. (Koncz, 2019; P. Kovács et al., 2017)

The Hungarian Psycho-oncology Society was established in 2002 and was previously headed by Magda Rohánszky and currently by Mónika Mailáth. The Oncopsychology and Rehabilitation Section (ORSZ) was founded in 2014 under the auspices of the Hungarian Oncology Society (MOT) and is headed by Péter Kovács.

In 2011, the Firebird Foundation was established under the leadership of Magda Rohánszky at the initiative of the Oncology Centre of the Szent László Hospital. Adrienne Kegye, Zsuzsanna Prezenszki, and their colleagues assist patients and their caregivers at the Psycho-oncology Outpatient Department of the Gyula Nyiro National Institute of Psychiatry and Addiction. Furthermore, many oncology departments in Budapest already have a psychologist or psychiatrist on staff. Oncopsychological support is also available in several rural cancer centers in Debrecen, Nyíregyháza, Szeged, Pécs, and Kecskemét. Additionally, oncopsychological care is provided in several private practices and private clinics nationwide. (Koncz, 2019)

Psychosocial oncological care is part of complex oncological rehabilitation and should be an available health service for the person concerned from the moment cancer is suspected. Hungary does not currently have an oncological rehabilitation protocol, although there has long been a clear intention to integrate rehabilitation into oncology treatment (Dank et al., 2021).

A historic step in this process was the inclusion of rehabilitation (including physiotherapy, social and psychological care) among the topics of the III Breast Cancer Consensus Conference and the resulting consensus document in 2016, aimed at summarizing state-of-the-art treatment recommendations for BC (Kahán et al., 2016), and then included in the updated version to meet the needs of modern care (Kahán et al., 2020). According to the document, the oncologist manages and organizes the oncological rehabilitation in Hungary (Kahán et al., 2020). Building on these protocols, in 2021, experts from several countries established the first regional protocol for breast cancer treatment, which also includes psychosocial care (Kahán et al., 2022; Rubovszky et al., 2022).

It is significant to highlight that while psychosocial oncology care has a tradition spanning decades in Hungary (Riskó, 2015), the profession's autonomous guideline was only formulated and published for the first time in 2021 in the Health Gazette (Egészségügyi Szakmai Kollégium, 2021).

The development and expansion of professional documents show that the intention in Hungary is clear: oncopsychology has been born, and it is part of complex oncological rehabilitation, which should be made part of oncological care and should be provided for

all patients. However, it must be seen that everyday practice is different from the paper form, and there are still many steps to take on the road ahead to achieve these stated goals. Based on clinical experience, it can be said that, apart from a few cases, there is currently no personalized, multidisciplinary rehabilitation plan for cancer patients in Hungary. There are oncology centers with rehabilitation professionals available, including dieticians, psychologists, physiotherapists, psychiatrists, and social workers. However, in most cases, their work is uncoordinated and isolated. Often, patients must take the initiative to become aware of the available professionals and reach out to them. Furthermore, for the time being, in most oncology departments or hospitals, only one mental health professional works, and there is a high turnover in this field.

The only organized, institutional rehabilitation care in Hungary is currently provided by the Semmelweis University Oncology Centre's rehabilitation program, launched in 2019 with an oncologist, rehabilitation specialist, physiotherapist, dietician, and psychologist. (Péntek et al., 2021) Elsewhere in the country, many dedicated and excellent professionals are working to make oncological rehabilitation an organized service, for example, at the National Institute of Oncology in Budapest and other oncology centers in Pécs, Kecskemét, Debrecen, and Nyíregyháza.

1.6. Summary

Hungary has the fourth-highest incidence of cancer and the highest mortality rate in the European Union. Breast cancer is the most prevalent cancer worldwide and the second most common in Hungary. The incidence and mortality rates of breast cancer in Hungary are higher than the regional average, even though most modern treatments are available in the country. On a personal level, facing a cancer diagnosis can be a highly burdensome life event. The experience of distress is a natural emotional reaction to the diagnosis and treatment of cancer, as the individual and their family experience a series of life-changing shocks and burdens. However, half of all cancer patients experience clinical distress (i.e., requiring treatment), which can make it challenging or even impossible to adapt to cancer or to adhere to oncological treatment. This can reduce survival rates and increase mortality. Distress can also affect the outcome of oncological treatments through psycho-neuro-immunological and behavioral mechanisms; its identification and management are therefore paramount. It is particularly relevant during surgical intervention in the first line of treatment. Unmet psychosocial needs can lead to lower quality of life. Unmet needs, as well as illness-related fears and experiences, may motivate patients to use CAM methods, as the most common reason for using CAM is the need to reduce distress and improve quality of life. Some forms of CAM can pose risks to patients' health, and their use can cause significant moral distress for the practitioner. Therefore, measuring CAM use and distress levels among breast cancer patients is of paramount importance. There is already a wealth of data in the international literature in this area; however, only a few studies have been conducted in Hungary on these crucial factors affecting breast cancer survival. It is of utmost importance to perform these studies in Hungary and to examine the psychosocial status, CAM use patterns, and their demographic, psychological, and clinical correlates in Hungarian breast cancer patients.

2. OBJECTIVES

Since no comprehensive study has been conducted in Hungary to assess the level of distress during the surgical period and its sociodemographic, psychological, and clinical determinants among women with breast cancer, the primary aim of this study was to map the distress characteristics of this patient population. This exploratory and quantitative study aims to explore the level of distress in the perioperative period and its associations with demographic, clinical, and psychological factors.

Since CAM use in this patient population and treatment period has not been specifically studied in Hungary, this study aims to explore the types of CAM used, the reasons behind the choice, expectations, frequency of use, characteristics, and associations with demographic, clinical, and psychological indicators.

As only a small part of the limited Hungarian data is available in English, this dissertation aims to contribute to the international literature regarding distress and CAM use related to breast cancer in Central-Eastern Europe.

This exploratory research also aimed to gain a better understanding of the psychosocial characteristics and CAM utilization of women who have undergone breast surgery and thus support the planning of psychosocial care tailored to their needs.

This research does not aim to measure or evaluate the effectiveness of CAM procedures. While CAM presents various ethical, moral, and value dilemmas for practitioners in clinical practice, this dissertation does not intend to pass judgment or establish a hierarchy of treatment procedures. The topic will be approached with scientific neutrality, acknowledging that cultural background may influence perspectives despite efforts to remain neutral.

The use of an exploratory research design enables the formulation of research questions. Based on the thesis aims, the following research questions can be formulated.

RQ1: What is the level of distress experienced by Hungarian breast cancer patients during the surgical period? Where does this lie in international comparison?

RQ2: Which demographic, psychological, and clinical characteristics are associated with the degree of distress? How does this compare with international experience?

RQ3: What is the prevalence of CAM use among Hungarian women with breast cancer? Does the degree of distress determine CAM use in the Hungarian patient population?

RQ4: Which demographic, psychological, and clinical variables influence CAM use?

3. METHODS

3.1. Participants and Procedures

According to the research design and approved protocol, data was planned to be collected over three years, from 2019 to 2021, with a sample size of 500 individuals. This period coincided with the COVID-19 pandemic, significantly impacting the research design. As with hospitals worldwide, the pandemic outbreak in 2020 has completely altered the operations at the survey site, rendering research impossible. Although continuation would have been possible after approximately a year, it became evident that due to the significantly altered circumstances (visiting ban, mandatory COVID testing, and mask-wearing, etc.), it was impossible to measure the same constructs even if the same research design and methodology had been used as before. Due to the COVID-19 pandemic outbreak, data collection had to be terminated prematurely, and the database collected until that point had to be considered closed.

This cross-sectional survey was conducted between April 1, 2019, and December 31, 2019, at the Department of Breast and Sarcoma Surgery of the National Institute of Oncology in Budapest, Hungary. The survey protocol was approved by the Regional, Institutional Science and Research Ethics Committee of Semmelweis University (SE RKEB: 2/2019).

According to the clinical routine of the department, the patient is admitted the day before the operation, the procedure takes place the next day, and the patient is discharged 2-3 days after the surgery, depending on the individual's recovery.

A self-administered survey was given to women admitted to the department for BC surgery. Thus, the study participants were women who had undergone diagnostic tests - complex breast examination (physical examination, mammography, ultrasound), histopathologic evaluation, and MRI - which confirmed the presence of malignant breast tumor, and then, based on the opinion of the so-called onco-team (a professional committee consisting of a radiologist, surgeon, oncologist and radiotherapist, which reviews and approves the treatment plan proposed by the attending physician based on the test results) they were scheduled for surgery and admitted to the surgical ward. Thus, BC diagnosis and planned surgery were selection criteria, regardless of where the person was in their cancer journey and whether they had received oncological treatment prior to the scheduled surgery. Female sex was also an inclusion criterion, and male individuals

with BC admitted to the ward were excluded from the study. Women who received breast surgery in the framework of one-day surgery (did not stay overnight) and those admitted for removal of sarcoma were also excluded. Further exclusion criteria were the inability to understand the questionnaire items or to cooperate with the survey due to acute or chronic reasons. Premorbid or comorbid conditions that did not interfere with comprehension and informed consent were not considered exclusion criteria.

Participation was voluntary, and patients could decide whether to complete the survey before or after surgery during their few-day stay in the department.

Although the hospital is located in Budapest, it is a national institution with a nationwide service area, allowing patients to come from all over the country. The department performs more than 1000 primary BC operations per year, which represents 12-15% of all breast surgeries performed in Hungary each year.

After providing a verbal briefing about the survey, I handed out the questionnaire to all participants. Once verbal consent was obtained, I provided participants with a documentation package that included written information about the survey and data handling, the questionnaire, and the informed consent form. Subjects were informed that they could withdraw from the study at any time without giving a reason and without financial or other consequences. No compensation or incentives were provided for their participation. I felt it was essential to contact all diagnosed women personally, as this ensured the opportunity to address any questions that may arise.

Questionnaire data were supplemented with clinical health data from electronic health records. This required linking the electronic health information and the questionnaire data, using the method of storing the consent form with the name separately from the anonymous questionnaire, and connecting them with a numeric code. This numeric code could only be linked to the person by the investigator, who was the only one with access to the password-protected and encrypted database. The database analyzed did not contain any personally identifiable information. As the investigator employed by the hospital as a clinical psychologist, I had a double obligation of confidentiality. As a clinician, I must comply with strict legal privacy rules about sensitive health data. As an investigator, research ethics clearly define the framework for data handling. The study was conducted in strict compliance with these regulations and with the utmost protection of personal information.

3.2. Materials

The survey assessed sociodemographic variables, self-rated health status, psychological characteristics, patterns of CAM use, and attitudes towards CAM with standardized tools validated on Hungarian samples as described below. The language of the questionnaire was Hungarian. Furthermore, the responses to the questionnaire were supplemented with medical data from the medical records.

3.2.1. The sociodemographic data of the survey

The collected socio-demographic data were the date of questionnaire completion, date of birth, education, residence, marital status, number of people living in a household, number of children, nature of work, employment, and perceived financial situation.
Table 26 in the Appendix provides details on the collected sociodemographic data.

3.2.2. Self-Rated Health Scale

A one-item Self-Rated Health (SRH) scale was used to measure the subjects' current subjective health status. Respondents were asked to rate their health status on a ten-point Likert scale, as follows.

"Please indicate on the following scale how you currently rate your health status?"

0 1 2 3 4 5 6 7 8 9 10

|_____|

very poor **very good**

Single-item scales are widely used in psychological research because they are easily adaptable to different populations, short and therefore cost-effective, and more likely to be answered because they require less time and effort to complete, as well as they are easier to interpret (Ittzés et al., 2014; McKenzie & Marks, 1999; Robins et al., 2001). Clinicians also prefer short measuring devices (Mitchell et al., 2008). The validity and predictive power of single-item scales measuring subjective perceptions of health status have been demonstrated (Benyamini, 2011; Idler & Benyamini, 1997).

3.2.3. The psychological data of the survey

3.2.3.1. Hospital Anxiety and Depression Scale

The evaluation of emotional symptoms and case identification necessitate distinct tools for physically ill patients as opposed to psychiatric patients. Therefore, Zigmond and Snaith created the Hospital Anxiety and Depression Scale (HADS) to aid this assessment. (Zigmond & Snaith, 1983; Snaith, 2003)

In this survey, distress was measured with the HADS; therefore, its two scales are considered the two output variables (HADS-A and HADS-D). The questionnaire consists of 14 items rated on a four-point Likert scale. Although there is no complete agreement in the literature on the threshold for case detection, in the oncological setting, a cut-off point of 9 seems appropriate for anxiety and 7 for depression. (Annunziata et al., 2020; Carey et al., 2012). The Hungarian version of the HADS questionnaire showed high internal consistency on both subscales: Cronbach's alpha for the subscales was 0.81 (anxiety) and 0.83 (depression). Factor analysis of the Hungarian version resulted in a two-factor model identical to the English version. (Muszbek et al., 2006)

3.2.3.2. Support Dimension Scale

The Support Dimension Scale (SDS), a simple, short instrument, was utilized to measure perceived social support. It was developed by Caldwell and colleagues in 1987 (Caldwell et al., 1987), and the Hungarian version was validated by Kopp and Skrabski in 1992 (Kopp et al., 1992). The respondent can rate her 14 types of social relationships on a four-point Likert scale according to how much she can rely on that person or group (e.g., parent, spouse, partner, friend, relative, mental health professional, religious community) in a difficult life situation. The four response options to assess how much she can rely on each form of relationship are 0=not at all, 1=slightly, 2=average, and 3=a great deal. The original scale consists of 32 items; however, in this survey, a simplified version of the instrument was used, which asks about the availability of 14 sources of help. Several national studies support the shortened version's applicability and reliability (Skrabski et al., 2005; Szádóczky et al., 2004). In the evaluation, the values for the items are summed. A higher total score indicates that the person feels more robust social support around her.

3.2.3.3. Freiburg Questionnaire of Coping with Illness–Short Version

The Freiburg Questionnaire of Coping With Illness–Short Version (FQCI) (Muthny, 1989) is a 35-item questionnaire that assesses various coping forms with illness. The Hungarian revised factor structure (Tiringer et al., 2011) matches four out of the five original scales: 1. Depressive and resigned coping; 2. Active and problem-focused coping; 3. Self-affirmation and distraction; 4. Searching for meaning and religious coping. Scale 5, the Bagatellization, Wishful Thinking scale, was not validated in the Hungarian validation. There are no thresholds; the four scales show the individual's coping profile and pattern.

3.2.3.4. Multidimensional Health Locus of Control

The Multidimensional Health Locus of Control (MHLC) Scale (Wallston et al., 1978) Form C (Wallston et al., 1994) measures health-related control beliefs among people with existing medical conditions. A health-related control belief is an individual's belief or expectation about which people (themselves or powerful others) or other factors (luck, random effects, intentional actions) determine their health. The MHLC - Form C questionnaire for individuals with medical conditions consists of four scales: 1. Internal, 2. Chance, 3. Doctor, and 4. Other. (Wallston et al., 1994). In a Hungarian validation study (Konkoly Thege et al., 2014), two of the original four factors (Doctor and Others) loaded on the same factor. Hence, the Hungarian version consists of three factors: 1. Chance, 2. Internal, 3. Doctor and Others. There are no cut-off values; the subscales show the dominance of beliefs relative to each other, thus drawing a profile of an individual's health control beliefs.

3.2.4. CAM-related data of the survey

The Holistic Complementary and Alternative Medicine Questionnaire (HCAMQ) assessed attitudes towards CAM. The International Complementary and Alternative Medicine Questionnaire (I-CAM-Q) was utilized to evaluate the features of CAM usage. In addition to the validated questionnaires, some questions were included on CAM use, reasons for CAM use, sources of information, the basis of choice, measurement of effectiveness, and financial expenditure. Table 27 in the Appendix provides details of these additional questions.

3.2.4.1. Holistic Complementary and Alternative Medicine Questionnaire

The Holistic Complementary and Alternative Medicine Questionnaire (HCAMQ) was published by Hyland and colleagues in 2003 (Hyland et al., 2003a). During the Hungarian validation of the 11-item questionnaire, Item 2 was excluded, so the two 5-item scales resulted in good validity and reliability indicators in the Hungarian sample. The two scales (CAM Scale and Holistic Health Beliefs Scale) correlate with each other and measure attitudes towards CAM and holistic approaches to health. For each item, a six-point Likert scale is used to indicate the level of agreement, as opposed to the usual numbering: 1 indicates full agreement, while 6 indicates no agreement. (Köteles, 2014) Some critical statements about CAM are included in the CAM scale, so those who agree with them and show a lower score concur with the lack of scientific justification of CAM, while those who indicate a higher score, on the contrary, advocate the acceptability of CAM. When calculating the total CAM Scale score, these inverted items are reversed and added to the straight items. In this way, the two scales of the questionnaires can be made to point in the same direction. Finally, when interpreting the scores of the two scales, it should be considered that a lower scale value indicates greater sympathy and agreement. In the Hungarian validation, the Cronbach's α-index of the CAM Scale was 0.81. The Holistic Health Beliefs Scale contains statements that reflect a holistic approach, so the lower the overall scale score, the more likely the individual is to agree with the holistic approach. The Cronbach's α-score for the Holistic Health Beliefs Scale was 0.68. The validity and reliability of the two scales are satisfactory. However, it is not recommended to use a total score. (Köteles, 2014)

3.2.4.2. International Complementary and Alternative Medicine Questionnaire

The International Complementary and Alternative Medicine Questionnaire (I-CAM-Q) was developed in a pan-European collaboration (Quandt et al., 2009) and validated in several countries (Druart & Pinsault, 2018; Shumer et al., 2014). The questionnaire uses four tables to assess the details of CAM use: 1. visits to health care and CAM providers, 2. CAM received from physicians, 3. use of herbal medicines and dietary supplements, and 4. self-help practices. (Quandt et al., 2009; Eardley et al., 2012).

Figure 21 in the Appendix shows an example of the tabular structure of the questionnaire. In each of the four tables, respondents could indicate whether they had used the given CAM in the last 12 months and how many times they had used it in the previous three months. In the next column, they could select from four options to indicate the reason they used the given CAM. The possibilities were Cancer, Symptoms of cancer or Side effects of oncological treatments, Previous problem or current illness unrelated to cancer, and Other reasons (specify). The last section of the table inquired about the usefulness of the given CAM. The answer options were very useful, somewhat useful, not useful at all, and do not know.

In Table 1 of the Hungarian version of the I-CAM-Q, which asks about visiting healthcare and CAM providers, professionals were grouped according to our definition of CAM, described in Section 3.3. Healthcare providers: Doctor, Psychologist, Physiotherapist, Dietician. CAM providers: Chiropractor, Homeopath, Acupuncturist, Phytotherapist, Kinesiologist, Masseur, Astrologer, Spiritual healer, Other (specify).

Table 2 of the I-CAM-Q examines CAM treatments received from doctors. Treatments listed are Manipulative technique, Homeopathy, Acupuncture, Herbal treatment, Spiritual healing, and Other (specify).

Table 3 of the I-CAM-Q looks at the use of herbal preparations and dietary supplements. Respondents were allowed to enter the products they use by category. There are four categories: Herbs/herbal preparations, Vitamins/minerals, Homeopathic remedies, and Other supplements. Three products can be entered and evaluated in each category according to the abovementioned criteria.

Table 4 of the I-CAM-Q lists self-help exercises: Meditation, Yoga, Chikung, Tai Chi, Relaxation, Visualization, Participation in a traditional healing ceremony, Praying, and Other (specify).

In all cases, the list of CAM provided in the questionnaire could be supplemented by a provider, agent, or practice that is not included but is used by the respondent.

3.2.5. Health-related clinical data in the survey

The questionnaire collected health data on comorbid somatic disease, premorbid psychiatric or neurological disease, family history of cancer, the time between the first detection of cancer symptoms and consulting a doctor, the time between learning the results of the screening test and consulting a doctor, and first specialist consulted after learning of the cancer diagnosis. The health-related questions are presented in detail in Table **27** in the Appendix.

Responses from the paper-based questionnaire were supplemented with clinical data collected from the electronic medical system:

- Date of diagnosis,
- TNM classification and stage classification,
- oncological treatments received up to the time of completion (surgery, chemotherapy, radiotherapy, hormone therapy, biological therapy),
- type of surgery during the current admission,
- whether the patient received psychological care (group or individual) at the Institute.

3.3. Definition of CAM used in the dissertation

Since this survey was conducted in a hospital setting where participants received conventional medicine, the choice of alternative therapy could not be explored, so the research focuses on the choice of complementary medicine (CM). Nevertheless, the term CAM will be retained in the dissertation, as these procedures and agents can be both complementary and alternative, depending on the patient's choice, should the patient choose to use them as a substitute for conventional treatment. Because of the definitional difficulties discussed earlier, it is necessary to formulate the CAM definition used in the thesis. As healthcare conventions vary from country to country and even from hospital to hospital within a country, and CAM can only be defined in relation to the mainstream healthcare of a given society, this attempt at definition is based on Hungarian legislation and the operating principles of the hospital chosen as the site of the investigation. Within the scope of this dissertation, conventional oncological treatment is defined as the medical procedures and agents that the hospital provides to patients with the financial support of the national health insurance system; these are what the NIO professionals prescribe and

provide to the patient: surgery, chemotherapy, radiotherapy, hormone therapy, immunotherapy, pain medication, medication for side effects, psychiatric medicines, psychotherapy, psychosocial care, physiotherapy, nutritional counseling, and social work. Healthcare services and prescriptions provided by the patient's general practitioner or other specialist (who is also part of Hungarian conventional health care and has a healthcare license) in the context of public or private health care are also considered conventional. Complementary and alternative medicine (CAM) is referred to as procedures and remedies that patients cannot receive as prescribed by their doctor at the NIO and financed by the health insurance system in this hospital; thus, they complement conventional medicine.

The current Act CLIV of 1997 on Health Care Article 3(e) of the Health Care Act defines healthcare service as follows. “The totality of health care activities which may be carried out in possession of an operating license issued by a state health administration body or, in cases specified by law, on the basis of registration by a state health administration body, and which are intended to preserve the health of the individual, to prevent, detect, diagnose, treat, prevent danger to life, improve the condition resulting from a disease or prevent further deterioration of the condition, to examine and treat the patient, to provide care, nursing care, medical rehabilitation, and to reduce pain and suffering, and the processing of the patient's examination material for the above purposes, including plastic reconstructive and aesthetic plastic invasive and minimally invasive procedures, activities relating to medicines, medical aids, medical care as defined by specific legislation, and rescue and patient transport, obstetric care, special procedures for human reproduction, artificial sterilization, medical research on human subjects, and activities specifically related to the examination of the dead, medical procedures on the dead, including related activities for the transport of the dead.”

In addition, point (f) defines a healthcare provider as: “any individual healthcare entrepreneur, legal person or unincorporated organization, regardless of the form of ownership or the provider, authorized to provide healthcare services and licensed by the State Health Service to operate”.

In the survey, regarding categorization, vitamins are perhaps the most critical items among dietary supplements, and visualization and relaxation among self-help exercises.
According to the CAM definition used in this thesis, the primary selection criterion for the classification of the supplements was whether the CAM product was available by prescription in the hospital under study. Vitamins can be prescribed or recommended by a doctor and available in pharmacies, i.e., conventional medicine. However, prescribing or recommending vitamins or supplements is not common practice in the study site, and patients can access these products at any time at their discretion without a prescription, so they are considered CAM products in the thesis in compliance with the original structure of the ICAM-Q questionnaire.
Similar difficulties of categorization arise with the self-help practices of relaxation and visualization. These methods can also be used by licensed clinical psychologists in supportive therapy. However, as they are widely available to patients via the Internet or in yoga classes, etc., they are not considered to be exclusively licensed or prescription-based. Moreover, even when taught by a clinical psychologist, these practices are designed to help individuals with emotional self-regulation. Once learned, they can be practiced independently without professional assistance. Therefore, in the present thesis, they are considered a modality of CAM methods, a self-help practice, in compliance with the ICAM-Q.
These local legal, socio-cultural, and economic circumstances determine the survey's current approach to conventional and complementary medicine.

3.4. Statistical Analysis

Data analysis was performed using IBM SPSS version 27.
Since one of the main outcomes of interest was distress, measured with the HADS, only women who completed the HADS were included in the analyses; missing values on other questionnaires were allowed.
A total of 162 patients consented to participate in the study, of whom 145 (90%) completed the HADS. For six individuals, the proportion of missing responses in the predictor psychological variables was so high that certain scales could not be calculated. As a result, their data were excluded from the analysis, resulting in a sample size of 139.

Multiple imputation (Carpenter et al., 2023; Harel & Zhou, 2007; Kenward & Carpenter, 2007) was used to impute missing data for one person with missing values on the subscale level only in the psychological scales (on the FQCI Self-affirmation and distraction coping and Searching for meaning and religious coping scales). Results from the pooled data were compared to the original data, and no significant differences were found.

To test the reliability of the applied psychological measures, we used the Cronbach's α, which is acceptable if its value is at least 0.70 (Nunnally & Bernstein, 1994). This value may be even lower for some psychological constructs (Kline, 2013). The assessment of internal consistency is influenced by the number of items in a given scale (Cortina, 1993; Nunnally & Bernstein, 1994). In cases where a given scale consists of a small number of items, the internal consistency criteria can be lowered.

As the literature suggests that distress significantly decreases after surgery, we first tested for the effect of the timing of questionnaire completion (pre- or post-surgery). This analysis determined whether we could treat our subjects as one sample when examining the correlates and predictors of distress. Since we measured distress with two outcome variables (HADS Anxiety and HADS Depression), we preferred multivariate analyses of variance (MANOVA) over t-test and ANOVA, as the co-existence of anxiety and depression symptoms is common in the cancer population (Herrmann, 1997; Kyranou, Puntillo, Aouizerat, et al., 2014; Kyranou, Puntillo, Dunn, et al., 2014; Muszbek et al., 2006), and MANOVA is the appropriate tool for simultaneously measuring group differences in two possibly related variables.

After determining whether the participants could be considered as a single sample, descriptive analysis was conducted, including examining frequencies, means, standard deviations, and percentages.

The correlation between the distress output variables and their potential predictors (continuous variables from sociodemographic, clinical data, and psychological factors) was calculated using bivariate analysis - Spearman correlation coefficient r. The correlation of dichotomous variables with the HADS scales was examined by calculating the point-biserial correlation coefficient (r_{pb}).

Multivariate regression analysis was used to determine the predictors of the distress outcome variables. As the sample size is close to 140, the number of predictors was limited in the multiple regression analysis to 14. The predictors for the analysis were

selected based on the literature and preliminary statistical analysis (Spearman and point-biserial correlation, MANOVA). The final model of the analysis was built in six steps: 1. clinical data (Comorbid somatic disease, Stage, Prior oncological treatment); 2. Adding sociodemographic characteristics and psychiatric history (Number of people living in a household, Residence, Premorbid psychiatric, neurological disorder); 3. Adding self-rated health, 4. Adding Perceived Social Support; 5. Adding coping (FQCI scales); 6. Adding locus of control (MHLC scales).

While checking the assumptions, the distress output variables (HADS-A and HADS-D) were found to deviate from the normal distribution, so square root transformation was used to adjust them, and their distribution was deemed acceptable after the transformation. The FQCI Active Coping scale was involved in the same procedure; however, since active, problem-oriented coping is predominant in the sample, square rooting could not correct the deviation from a normal distribution. On this basis, this scale was used to characterize the sample but was omitted from the regression analysis.

The correlates of CAM use (sociodemographic, psychological, clinical) were tested using Pearson's correlation coefficient (r) and point-biserial correlation coefficient (r_{pb}). Since the Pearson correlation calculation is utilized in both scenarios, the results for interval and dichotomous variables are displayed in a table featuring the Pearson correlation. Since CAM use is binary (Yes/No), binary logistic regression was used to examine its predictors. The final model of the analysis was built in three steps: 1. sociodemographic data (Age, Number of people living in a household, Education, Marital status); 2. Adding clinical characteristics (Comorbid somatic disorder, Stage); 3. Adding psychological factors (Self-Rated Health, Social Dimension Scale, FQCI scales, MHLC scales).

4. RESULTS

4.1. Descriptive characteristics of the sample

4.1.1. Sociodemographic characteristics of the sample

In the survey, all 139 respondents were female, with an average age of 51 years. The sociodemographic characteristics of the sample are shown in Table 3.

Table 3. The sociodemographic characteristics of the sample in numbers and percentages unless otherwise stated (N=139)

		Sample N=139
Age *mean in years, SD (range)*		*50.99, 11.54 (29; 82)*
	Young <40	23 (17%)
	Middle 40-64	92 (66%)
	Older >65	24 (17%)
Education	**Primary**	1 (1%)
	Secondary	50 (36%)
	High	85 (61%)
	N/A	3 (2%)
Residence	**Urban** (Capital city & City)	114 (82%)
	Rural (Village & Other)	25 (18%)
Marital status	**Lives alone**[1]	25 (18%)
	Married or in a relationship	114 (82%)
Number of people living in a household	**1**	16 (12%)
	2-4	110 (79%)
	5 or more	7 (5%)
	N/A	6 (4%)
Number of children	**0**	17 (12%)
	1	35 (25%)
	2 or more	87 (63%)
Nature of work	**Blue collar**	31 (22%)
	White collar	79 (57%)
	N/A	29 (21%)
Employment	**Full-time**	80 (58%)
	Part-time	13 (9%)
	Not employed[2]	24 (17%)
	N/A	22 (16%)
Perceived financial situation[3]	**Below average**[4]	14 (10%)
	Average	92 (66%)
	Above average	30 (22%)
	N/A	3 (2%)

[1] Single, divorced, and widowed subjects were merged into the 'Lives alone' category.

[2] The Not employed category includes the unemployed and those who do not have a job for other reasons: maternity leave, pensioner, student, other.

[3] Based on self-report.

[4] In the category Below Average, the 'bad' and 'acceptable' answers were combined from the questionnaire.

According to Table 3, the sample comprises primarily middle-aged, highly educated, urban, married women who live with at least a partner and have children. They have full-time professional jobs and consider their financial situation to be average.

Table 4 shows that the majority of participants completed the questionnaire after surgery.

Table 4. Timing of questionnaire completion based on medical records (N=139)

Timing of questionnaire completion	**Before surgery**	44 (32%)
	After surgery	95 (68%)

Using Pillai's trace, there was no significant effect of timing of the completion (pre-/post-surgery) on distress scores $F(2, 136) = 2.735$, $p = 0.068$. The MANOVA was followed up with discriminant analysis, which revealed one discriminant function and explained 100% of the variance, canonical $R^2 = 0.039$. This function did not significantly differentiate the pre-/post-surgery groups, Wilks' Lambda = 0.961, $\chi 2 = 5.363$, $p = 0.068$. Our data can be treated as one sample in our analysis.

4.1.2. Psychological characteristics of the sample

Cronbach's α was calculated to test the internal consistency of psychological measures. The results of the analyses are summarized in Table 5.

Table 5. Internal consistency indicators for the psychological measures used

Measures	**Cronbach α**	**Reliability indicators obtained in Hungarian validation**
HADS – Anxiety	0,841	0,81 (Cronbach α)
HADS – Depression	0,826	0,83(Cronbach α)
FQCI – Depressive and resigned coping	0,606	0,70 (composite reliability, CR)
FQCI – Active and problem-focused coping	0,811	0,74 (composite reliability, CR)
FQCI – Self-affirmation and distraction	0,685	0,69 (composite reliability, CR)
FQCI – Searching for meaning and religious coping	0,461	0,57 (composite reliability, CR)
MHLC – Chance	0,833	0,78 (Cronbach α)
MHLC – Internal control	0,761	0,79 (Cronbach α)
MHLC – Doctor and others	0,507	0,71 (Cronbach α)
HCAMQ – Holistic Health Beliefs	0,528	0,68 (Cronbach α)
HCAMQ – CAM scale	0,630	0,81 (Cronbach α)

Since the Caldwell Support Dimension Scale is not a questionnaire designed to measure an underlying psychological construct, but an inventory or list of persons or groups who provide support to the respondent, reliability is not a meaningful characteristic of the

instrument, and is therefore not included in Table 5. summarizing the reliability studies. Most of the psychological measures had a Cronbach's α of around or above 0.7, which indicates acceptable internal reliability of the measures. Three subscales showed lower values, which may be due to the low item counts (3-6 items).

The psychological characteristics of the sample are shown in Table 6.

The sample reported good subjective health perceptions (mean score of 6.93 on a ten-point scale). The level of perceived social support in the sample was average. Of the relationship types, friends scored the highest (2.27 on a four-point scale with values ranging from 0 to 3), followed by children (2.20) and spouses (2.04).

The sample scored highest on the FQCI Active and problem-focused coping and MHLC Doctor and Others and MHLC Internal control.

41 individuals, 29% of the sample, scored nine or higher on the HADS Anxiety scale, and 31 individuals, 22% of the sample, scored seven or higher on the HADS Depression scale, with cut-off points indicating the presence of symptoms.

Figures 22-26 in the Appendix show the means and standard deviations for each questionnaire item.

Table 6. The psychological characteristics of the sample (N=139)

Factors	Mean *(SD)*	Median	Mode
Self-Rated Health[1]	6,93 (1,91)	**7**	**8**
HADS-Anxiety	6,81 *(4,29)*	6	5
HADS-Depression	3,90 *(3,55)*	3	1
Support Dimension Scale ("Social Support")	15,90 *(5,99)*	16	11
FQCI Depressive and resigned coping ("Depressive coping)	2,54 *(0,78)*	2,6	2,4
FQCI Active and problem-focused coping ("Active coping")	**4,51** *(0,69)*	**4,67**	**5**
FQCI Self-affirmation and distraction ("Self-affirmation coping")	3,88 *(0,88)*	4	4,33
FQCI Searching for meaning and religious coping ("Religious coping")	2,94 *(1,03)*	3	3
MHLC Internal control	**21,90** *(5,83)*	**22**	**24**
MHLC Chance	13,99 *(6,11)*	13	6
MHLC Doctor and Others ("Social external")	**22,94** *(4,51)*	**23**	**25**

[1]Since SRH is generated in a complex psycho-social-cultural-neurological process of perception and evaluation of an individual's clinical status, from here on the presentation and interpretation of its results are combined with psychological indicators.

4.1.3. Clinical characteristics of the sample

The clinical characteristics of the sample are shown in Table 7. The majority of the participants have no co-occurring somatic or psychiatric conditions but do have a positive family history of cancer. Of the sample, 31% were diagnosed with early-stage disease, 67% with locally advanced, and 3% with advanced-stage disease. The majority had already undergone some form of oncological treatment; however, for 30%, the current surgery was their first oncological treatment. 75% of the surgical procedures were conducted for cancer, and the remaining 25% were for reconstruction purposes. 66% of respondents received their cancer diagnosis within one year of completing the questionnaire. Moreover, 16% received individual or group psychological care in the hospital before completing the questionnaire.

Table 7. The clinical characteristics of the sample in numbers and percentages unless otherwise stated (N=139)

		Sample N=139
Comorbid somatic disease[1]	**Yes**	57 (41%)
	No	82 (59%)
Premorbid psychiatric or neurological disorder[1]	**Yes**	48 (35%)
	No	91 (65%)
Family history of cancer[1]	**Yes**	94 (68%)
	No	42 (30%)
	N/A	3 (2%)
Stage[2]	**0**	6 (4%)
	1, 1A, 1B	37 (27%)
	2A, 2B	73 (52%)
	3A, 3B, 3C	19 (14%)
	4	4 (3%)
Treatments received prior to current surgery[2]	**Surgery**	59 (42%)
	Chemotherapy	74 (53%)
	Radiotherapy	30 (22%)
	Endocrine therapy	43 (31%)
	Biological therapy	28 (20%)
	none	41 (30%)
Type of surgery during current admission[2]	**Mastectomy (primary surgery)**	43 (31%)
	Quadrantectomy (primary surgery)	49 (35%)
	Reoperation	8 (6%)
	Lymph node dissection	4 (3%)
	Reconstruction	35 (25%)

Time from diagnosis to questionnaire completion[2] mean in days, *SD (range)*		658.94, *1284.41 (1; 8723)*
	0 – 3 months	40 (29%)
	3 – 6 months	19 (14%)
	6-12 months	32 (23%)
	1 – 2 years	18 (13%)
	2 – 3 years	11 (8%)
	3 – 4 years	2 (1%)
	4 – 5 years	5 (3%)
	>5 years	12 (9%)
Psychosocial care provided at the hospital prior to completion[2]	**Not used**	117 (84%)
	Used	22 (16%)

[1] Based on self-report.

[2] Based on medical records.

The characteristics of seeking medical help for cancer are shown in Table 8. 46% of respondents had seen a doctor within two weeks of first symptoms, while 8% had sought medical help after more than one year. 84% sought medical assistance within two weeks of receiving the breast examination result, while there was also one person who delayed seeking medical help for several months. However, no one waited one year or more after receiving the result. Following a cancer diagnosis, 70% contacted a physician as the first professional regarding the condition.

Table 8. Characteristics of the first visit to a physician in connection with cancer, based on questionnaire responses in numbers and percentages unless otherwise stated

Factors		***N=139***
Time from first symptom to seeking medical attention		
	No symptoms were perceived, cancer was detected at the screening	31 (22%)
	within 2 weeks	64 (46%)
	3-4 weeks	18 (13%)
	2-3 months	14 (10%)
	4-12 months	7 (5%)
	2-3 years	3 (2%)
	> 4 years	1 (1%)
	N/A	1 (1%)
Time from screening test result to visit a physician		
	No symptoms were perceived, cancer was detected at the screening	8 (6%)
	within 2 weeks	116 (83%)
	3-4 weeks	3 (2%)

	2-3 months	4 (3%)
	4-12 months	1 (1%)
	2-3 years	0
	> 4 years	0
	N/A	7 (5%)
Which specialist did you first consult after learning of your cancer diagnosis?		
	Physician	98 (71%)
	Psychologist	2 (1%)
	Chiropractor	1 (1%)
	Kinesiologist	2 (1%)
	Spiritual healer	1 (1%)
	N/A	35 (25%)

4.1.4. CAM related attitude and CAM utilization of the sample

According to the developers of the HCAMQ questionnaire (Hyland et al., 2003b), the focus of the holistic model is on body balance, which is maintained by understanding the interrelationships and regulating the elements of the human body as a system: the complex interactions of nutritional, emotional and lifestyle factors and their regulation determine health. The Holistic Health Beliefs Scale items emphasize the lifestyle and psychological factors of health maintenance. The other scale focuses on CAM methods, with items that highlight criticisms such as lack of scientific evidence and potential risks.

In this study, participants were less oriented towards the CAM and instead preferred a holistic approach to health, as shown in Table 9.

Table 9. Means and Standard Deviations of the two scales of the Holistic Complementary and Alternative Medicine Questionnaire

	N=139
CAM scale *mean (SD)*	22,49 (5,85)
Holistic Health Beliefs *mean (SD)*	**7,98** (3,09)

When analyzing the items in the HCAMQ, it is important to note that a higher score indicates a lower level of agreement, as with the scales and the inverted Likert scale. In the Appendix, Figure 26 displays the means and standard deviation values by item. Based on the responses, it can be concluded that respondents do not believe that CAM should be tried before consulting a doctor, nor do they agree that it should only be used as a last resort. They maintain that these procedures may pose a risk as they impede one's access to proper medical treatment while simultaneously bolstering the body's innate defenses.

They purport that one should only resort to CAM for less severe symptoms and that such methods necessitate more rigorous investigation. They strongly agree with the tenets of a holistic approach to health: stress can cause illness, depression can exacerbate the symptoms of an illness, it is essential to pay attention to lifestyle during times of stress, positive thinking can help to overcome minor diseases, and it is vital to maintain a balance between work and rest to stay healthy.

The sample includes 19 people (14%) who do not use any form of CAM and 120 people (86%) who use or have used some form of CAM in the past 12 months.

The use of conventional and CAM services is shown in Figure 4. Almost everyone in the sample indicated that they had utilized a conventional healthcare provider in the past year. It is important to note that participants completed the questionnaire while in a hospital ward. Additionally, 38% of respondents had visited a CAM provider, 14% had received CAM from a doctor, 73% had taken some form of CAM medication, and 66% had used self-help practices.

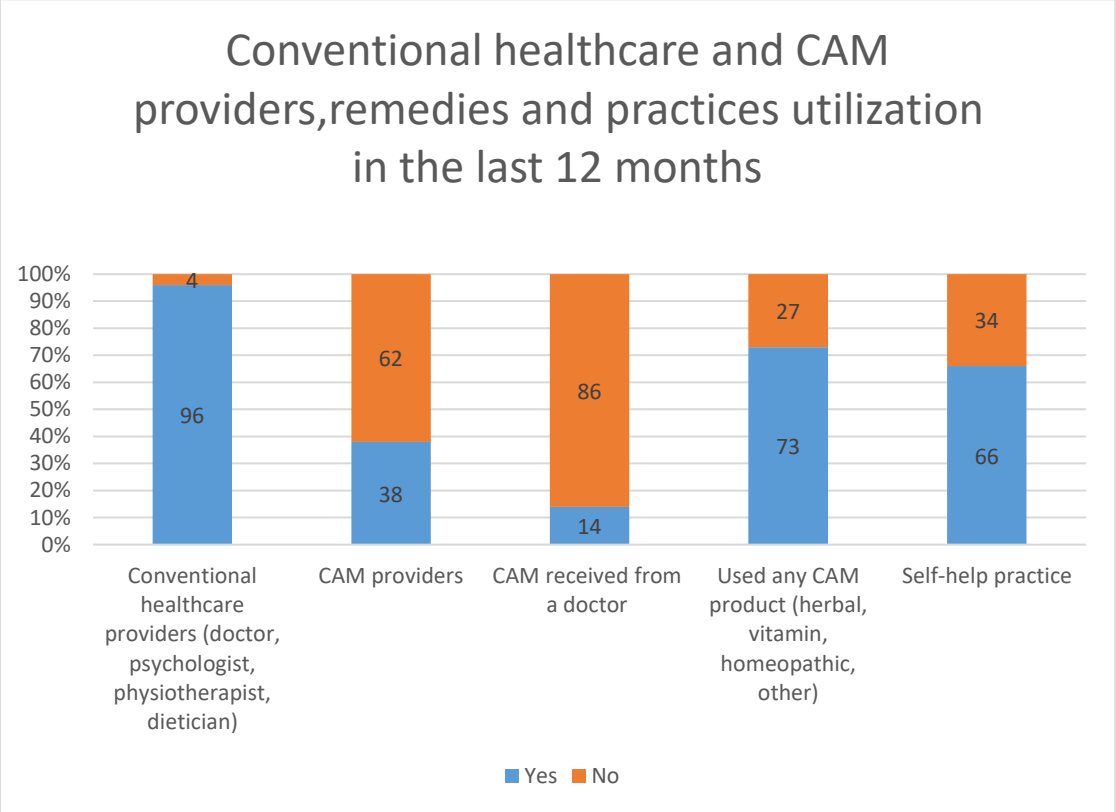

Figure 4. Conventional healthcare and CAM services and preparation used in the last 12 months as a percentage of respondents (N=139)

The characteristics of visits to conventional healthcare providers are shown in Table 10. The majority of those who consulted a conventional healthcare provider consulted a doctor, mainly for cancer, and most were very satisfied with the service. 27% also consulted a psychologist, primarily for cancer; most were very satisfied. Overall, the satisfaction of those who consulted a conventional healthcare provider was 2.75 on a 3-point scale.

Table 10. Percentage of visits to conventional healthcare providers in the last 12 months, reason for visit, and perception of usefulness of service

	Visits in the last 12 months	**Reason for visit**		**Usefulness**	
Physician	131 (94%)	Cancer	92 (66%)	Very	103 (74%)
		Cancer symptoms or treatment side effects	12 (9%)	Somewhat	18 (13%)
		Problem unrelated to cancer	11 (8%)	Not at all	0
		Other	0	I do not know	2 (1%)
Psychologist	38 (27%)	Cancer	16 (12%)	Very	23 (17%)
		Cancer symptoms or treatment side effects	8 (6%)	Somewhat	4 (3%)
		Problem unrelated to cancer	4 (3%)	Not at all	5 (4%)
		Other	0	I do not know	0
Physiologist	26 (19%)	Cancer	7 (5%)	Very	14 (10%)
		Cancer symptoms or treatment side effects	6 (4%)	Somewhat	4 (3%)
		Problem unrelated to cancer	5 (4%)	Not at all	2 (1%)
		Other	0	I do not know	0
Dietitian	12 (9%)	Cancer	2 (1%)	Very	8 (6%)
		Cancer symptoms or treatment side effects	2 (1%)	Somewhat	2 (1%)
		Problem unrelated to cancer	1 (1%)	Not at all	2 (1%)
		Other	1	I do not know	0
Total of conventional healthcare providers	133 (96%)	Cancer[1]	29 (21%)	Very[1]	37 (27%)
		Cancer symptoms or treatment side effects[1]	7 (5%)	Somewhat[1]	7 (5%)

		Problem unrelated to cancer[1]	5 (4%)	Not at all[1]	2 (1%)
		Other[1]	1	I do not know[1]	0
				Mean of the usefulness ratings (3-point scale): 2.75	

[1] Mean

Figure 5 shows the conventional healthcare and CAM providers visited by professionals.

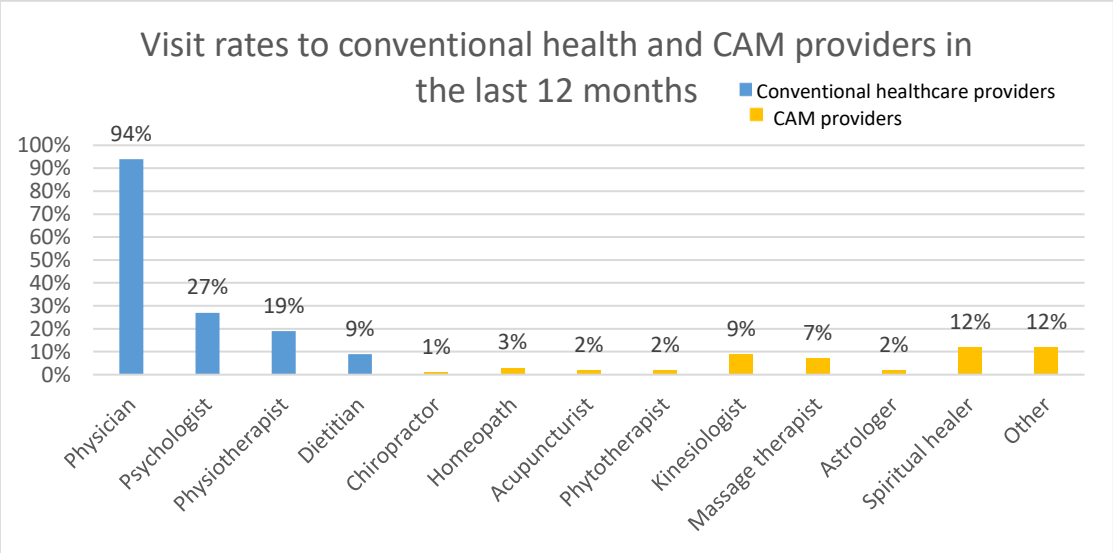

Figure 5. Percentage of visits to conventional healthcare and CAM providers in the sample (N=139)

18 service providers were named in the Other category (all mentioned once, unless otherwise indicated): Acupressure naturopath, Sleep specialist, Anthroposophist, Ayurveda doctor (twice), Bioenergetic, Specialist in internal medicine and acupuncturist, Energetic healer, Immunotherapy, Kagun bath, My local GP, Soul Maker, Pastor (twice), Manual therapist, Gynaecologist, family doctor, Prananadi, Theta healing. (Verbatim translation of respondents' answers; no modifications or corrections were made to the written responses).

Frequency data on the reasons for visiting conventional health care providers and their subjective utility ratings, as well as the reasons for visiting CAM providers, are illustrated in Figures 27, 28, and 29 in the Appendix.

The characteristics of CAM providers' visits are shown in Table 11. The reasons for visiting a CAM provider were varied: some sought cancer treatment, while others sought treatment for an unrelated prior condition. The average satisfaction level of those who sought treatment from a CAM provider was rated at 2.72 on a 3-point scale.

Table 11. Frequency of visits to CAM providers in the last 12 months, the reason for visit, and perception of the usefulness of service (N=139)

	Visits in the last 12 months	**Reason for visit**		**Usefulness**	
Chiropractor	2 (1%)	Cancer	0	Very	1 (1%)
		Cancer symptoms or treatment side effects	0	Somewhat	0
		Problem unrelated to cancer	1 (1%)	Not at all	1 (1%)
		Other	0	I do not know	0
Homeopath	4 (3%)	Cancer	1 (1%)	Very	2 (1%)
		Cancer symptoms or treatment side effects	0	Somewhat	0
		Problem unrelated to cancer	0	Not at all	1 (1%)
		Other	0	I do not know	0
Acupuncturist	3 (2%)	Cancer	2 (1%)	Very	0
		Cancer symptoms or treatment side effects	1 (1%)	Somewhat	2 (1%)
		Problem unrelated to cancer	0	Not at all	1 (1%)
		Other	0	I do not know	0
Phytotherapist	3 (2%)	Cancer	3 (2%)	Very	1 (1%)
		Cancer symptoms or treatment side effects	0	Somewhat	1 (1%)
		Problem unrelated to cancer	0	Not at all	1 (1%)
		Other	0	I do not know	0
Kinesiologist	12 (9%)	Cancer	4 (3%)	Very	6 (4%)
		Cancer symptoms or treatment side effects	1 (1%)	Somewhat	3 (2%)
		Problem unrelated to cancer	1 (1%)	Not at all	1 (1%)
		Other	0	I do not know	0
Massage therapist	19 (7%)	Cancer	1 (1%)	Very	7 (5%)
		Cancer symptoms or treatment side effects	0	Somewhat	0
		Problem unrelated to cancer	4 (3%)	Not at all	1 (1%)
		Other	0	I do not know	0
Astrologer	3 (2%)	Cancer	0	Very	2 (1%)
		Cancer symptoms or treatment side effects	0	Somewhat	0
		Problem unrelated to cancer	0	Not at all	1 (1%)

		Other	0	I do not know	0
Spiritual healer	16 (12%)	Cancer	6 (4%)	Very	13 (9%)
		Cancer symptoms or treatment side effects	2 (1%)	Somewhat	1 (1%)
		Problem unrelated to cancer	0	Not at all	1 (1%)
		Other	0	I do not know	1 (1%)
Other CAM provider	16 (12%)	Cancer	4 (3%)	Very	14 (10%)
		Cancer symptoms or treatment side effects	1 (1%)	Somewhat	2 (1%)
		Problem unrelated to cancer	3 (2%)	Not at all	0
		Other	0	I do not know	0
Total	53 (38%)	Cancer	2 (1%)	Very	5 (4%)
		Cancer symptoms or treatment side effects	1 (1%)	Somewhat	1 (1%)
		Problem unrelated to cancer	1 (1%)	Not at all	1 (1%)
		Other	0	I do not know	0
				Mean of the usefulness ratings (3-point scale): 2.72	

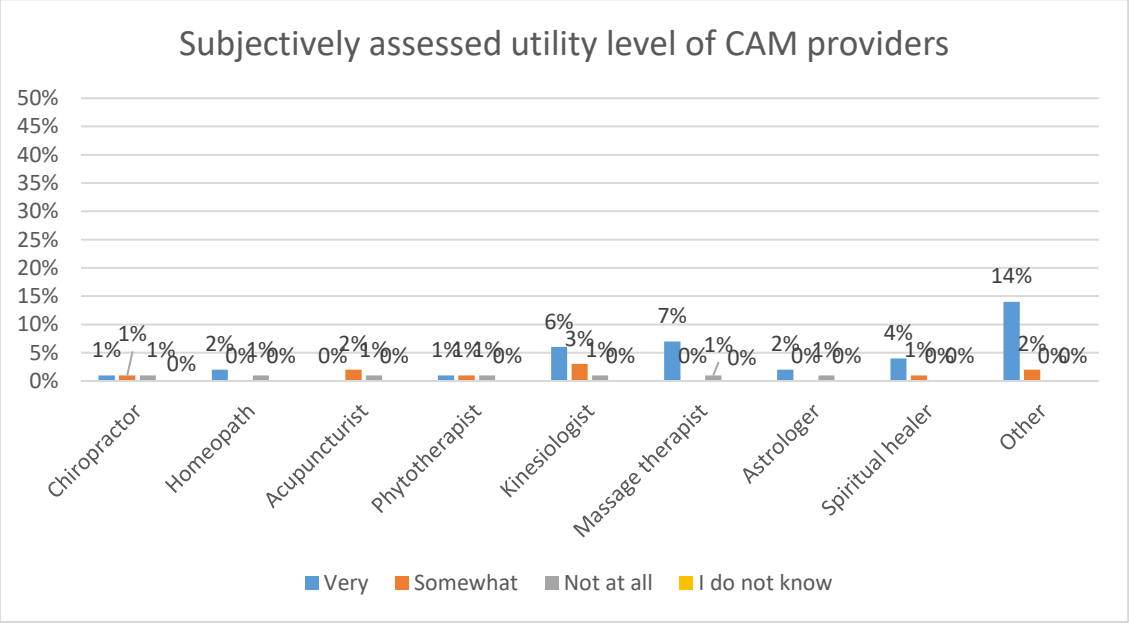

Figure 6. Subjectively rated usefulness of CAM providers visited in the last 12 months among the sample (N=139)

The characteristics of CAM received from a doctor are presented in Table 12. CAM from doctors was primarily related to cancer, with an overall average satisfaction score of 2.82 points. In the "Other" category, seven CAM methods that were given to the respondents

by a doctor were mentioned (mentioned once, unless otherwise indicated): Bioenergetic, Biochemist chemical engineer and food scientist, Family Constellation, Frequency (ATHON), Immunterapix, Chemotherapy, Vitamins. (Verbatim translation of respondents' answers; no modifications or corrections were made to the written responses.)

Table 12. Frequency, reason, and subjective perceived usefulness of CAM service received from a doctor in the sample (N=139)

	Visits in the last 12 months	**Reason for visit**		**Usefulness**	
Manipulative technique (mobilization methods, massage, etc.)	4 (3%)	Cancer	0	Very	2 (1%)
		Cancer symptoms or treatment side effects	0	Somewhat	1 (1%)
		Problem unrelated to cancer	2 (1%)	Not at all	0
		Other	0	I do not know	0
Homeopathy	1 (1%)	Cancer	0	Very	0
		Cancer symptoms or treatment side effects	0	Somewhat	0
		Problem unrelated to cancer	0	Not at all	0
		Other	0	I do not know	1 (1%)
Acupuncture	3 (2%)	Cancer	0	Very	0
		Cancer symptoms or treatment side effects	1 (1%)	Somewhat	1 (1%)
		Problem unrelated to cancer	1 (1%)	Not at all	0
		Other	0	I do not know	1 (1%)
Herbal treatment	11 (8%)	Cancer	4 (3%)	Very	6 (4%)
		Cancer symptoms or treatment side effects	1 (1%)	Somewhat	2 (1%)
		Problem unrelated to cancer	1 (1%)	Not at all	0
		Other	0	I do not know	1 (1%)
Spiritual healing	5 (4%)	Cancer	2 (1%)	Very	3 (2%)
		Cancer symptoms or treatment side effects	1 (1%)	Somewhat	0
		Problem unrelated to cancer	0	Not at all	0
		Other	0	I do not know	0
Other	7 (5%)	Cancer	4 (3%)	Very	7 (5%)
		Cancer symptoms or treatment side effects	0	Somewhat	0
		Problem unrelated to cancer	0	Not at all	0
		Other	0	I do not know	0
Total	20 (14%)	Cancer	2 (1%)	Very	17 (12%)
		Cancer symptoms or treatment side effects	1 (1%)	Somewhat	3 (2%)
		Problem unrelated to cancer	1 (1%)	Not at all	0

		Other	0	I do not know	0
				Mean of the usefulness ratings (3-point scale): 2.82	

The characteristics of the use of CAM preparations are presented in Table 13. Of the CAM products, vitamins and minerals were the most popular; 61% of the study participants had taken a vitamin within the past year, 37% used herbs, 2% used homeopathic remedies, and 20% used other preparations. The average satisfaction rating for CAM products was 2.59 on a 3-point scale.

Table 13. Herbal preparations and dietary supplements used, reasons for their use, and subjective perception of their usefulness in the sample (N=139)

	Currently used	**Reason for use[4]**		**Usefulness[5]**	
Herbs/Herb preparations[1]	52 (37%)	Cancer	11 (8%)	Very	19 (14%)
		Cancer symptoms or treatment side effects	7 (5%)	Somewhat	12 (8%)
		Problem unrelated to cancer	6 (4%)	Not at all	3 (2%)
		Other	0	I do not know	0
Vitamins/ Minerals[2]	85 (61%)	Cancer	18 (13%)	Very	29 (21%)
		Cancer symptoms or treatment side effects	8 (6%)	Somewhat	14 (10%)
		Problem unrelated to cancer	5 (4%)	Not at all	1 (1%)
		Other	0	I do not know	9 (6%)
Homeopathic remedies[3]	3 (2%)	Cancer	1 (1%)	Very	2 (1%)
		Cancer symptoms or treatment side effects	1 (1%)	Somewhat	1 (1%)
		Problem unrelated to cancer	1 (1%)	Not at all	0
		Other	0	I do not know	0
Other supplementary agents	28 (20%)	Cancer	8 (6%)	Very	8 (6%)
		Cancer symptoms or treatment side effects	2 (1%)	Somewhat	3 (2%)
		Problem unrelated to cancer	1 (1%)	Not at all	0
		Other	0	I do not know	2 (1%)
Total	102 (73%)	Cancer	10 (7%)	Very	15 (11%)
		Cancer symptoms or treatment side effects	5 (4%)	Somewhat	8 (6%)
		Problem unrelated to cancer	3 (2%)	Not at all	1 (1%)
		Other	0	I do not know	0
				Average rating on a 3-point scale: 2.59	

[1] A literal translation of the list of herbs mentioned in the questionnaire is given in the Appendix (Table 29).

[2] A literal translation of the list of vitamins mentioned in the questionnaire is given in the Appendix (Table 30).

[3] A literal translation of the list of homeopathic remedies mentioned in the questionnaire is given in the Appendix (Table 31).

[4] For each category of dietary supplements, the respondents themselves could indicate the products they use or have used. A maximum of 3 products could be entered in each category. Responds within each category were aggregated and averaged to determine the reason for use. (N=139)

[5] For each category of dietary supplements, the respondents themselves could indicate the products they use or have used. A maximum of 3 products could be entered in each category. To determine subjective usefulness, responses within each category were aggregated and averaged. (N=139)

The characteristics of the self-help practices used are presented in Table 14. Prayer (44%), meditation (35%) and relaxation (22%) were the most popular self-help practices. The average rating of the usefulness of these CAM practices was 2.62 on a 3-point scale.

In the category of self-help practices "Other", 16 practices were mentioned by the participants (mentioned once, unless otherwise indicated, literal translation without change): Mind control, Germanic healer, Group therapy, Energy Healers, Running, Hypnosis; Mindfulness; Positive mantra; Prananadhi; Reiki; Regular exercise; Senior joy dance; Simonton Reiki; Somatodrama; Gymnastics; Hiking; Zen meditation.

Table 14. Self-help practices used, reasons for their use, and subjective perception of their usefulness in the sample (N=139)

	Practicing in the last 12 months	**Reason for visit**		**Usefulness**	
Meditation	48 (35%)	Cancer	30 (22%)	Very	30 (22%)
		Cancer symptoms or treatment side effects	5 (4%)	Somewhat	11 (8%)
		Problem unrelated to cancer	3 (2%)	Not at all	1 (1%)
		Other	0	I do not know	3 (2%)
Yoga	28 (20%)	Cancer	11 (8%)	Very	19 (14%)
		Cancer symptoms or treatment side effects	0	Somewhat	5 (4%)
		Problem unrelated to cancer	3 (2%)	Not at all	1 (1%)
		Other	0	I do not know	0
Chikung	3 (2%)	Cancer	3 (2%)	Very	1 (1%)
		Cancer symptoms or treatment side effects	0	Somewhat	1 (1%)
		Problem unrelated to cancer	0	Not at all	1 (1%)
		Other	0	I do not know	0
Tai Chi	1 (1%)	Cancer	1 (1%)	Very	0
		Cancer symptoms or treatment side effects	0	Somewhat	1 (1%)

		Problem unrelated to cancer	0	Not at all	0
		Other	0	I do not know	0
Relaxation	31 (22%)	Cancer	18 (13%)	Very	18 (13%)
		Cancer symptoms or treatment side effects	2 (1%)	Somewhat	10 (7%)
		Problem unrelated to cancer	3 (2%)	Not at all	1 (1%)
		Other	0	I do not know	0
Visualization	27 (19%)	Cancer	18 (13%)	Very	11 (8%)
		Cancer symptoms or treatment side effects	2 (1%)	Somewhat	7 (5%)
		Problem unrelated to cancer	2 (1%)	Not at all	3 (2%)
		Other	0	I do not know	3 (2%)
Participation in a traditional healing ceremony	4 (3%)	Cancer	5 (4%)	Very	3 (2%)
		Cancer symptoms or treatment side effects	0	Somewhat	0
		Problem unrelated to cancer	1 (1%)	Not at all	1 (1%)
		Other	0	I do not know	0
Praying	61 (44%)	Cancer	39 (28%)	Very	33 (24%)
		Cancer symptoms or treatment side effects	1 (1%)	Somewhat	11 (8%)
		Problem unrelated to cancer	4 (3%)	Not at all	1 (1%)
		Other	0	I do not know	2 (1%)
Other	15 (11%)	Cancer	6 (4%)	Very	11 (8%)
		Cancer symptoms or treatment side effects	0	Somewhat	2 (1%)
		Problem unrelated to cancer	2 (1%)	Not at all	1 (1%)
		Other	0	I do not know	0
Total	91 (66%)	Cancer	15 (11%)	Very	14 (10%)
		Cancer symptoms or treatment side effects	1 (1%)	Somewhat	5 (4%)
		Problem unrelated to cancer	2 (1%)	Not at all	1 (1%)
		Other	0	I do not know	0
				Average rating on a 3-point scale: 2.62	

Table 15 shows that most people choose CAM based on medical advice (16%). Additionally, the recommendation of a relative (15%), a CAM provider (12%), a fellow patient (12%), and information found on the internet (12%) were also notable.

Table 15. The basis of the selection of CAM preparations in case numbers and sample percentage

Basis for the selection of CAM preparations			
commercial	0	Internet	17 (12%)
the package leaflet of the product	4 (3%)	patients suggested	17 (12%)
based on information from the distributor	5 (4%)	relative suggested	21 (15%)
medical advice	**22 (16%)**	healthcare provider suggested	12 (9%)
scientific publications	14 (10%)	advertised on the radio	1 (1%)
based on the advice of a CAM provider	16 (12%)	advice from an online patient community	3 (2%)

Table 16 shows where participants obtained their information on CAM. Most individuals learned about their chosen CAM through a friend (22%) or family member (13%), with the Internet (13%) and fellow patients (11%) also being significant sources of information. Healthcare professionals, including doctors, nurses, GPs, other physicians, and healthcare providers, collectively accounted for the most significant source of information (24%).

Table 16. Questionnaire respondents' sources of information on CAM products, by case numbers and percentage of sample (N=139)

Source of information on CAM preparations			
Radio	2 (1%)	nurse	1 (1%)
television	4 (3%)	GP	10 (7%)
newspaper	2 (1%)	other physicians	10 (7%)
flyer	1 (1%)	other healthcare providers	3 (2%)
acquaintance, friend	**30 (22%)**	Internet	18 (13%)
relative	18 (13%)	online patient community	5 (4%)
patient	15 (11%)	CAM provider	11 (8%)
attending physician	9 (7%)	Other (The source was not named)	4 (3%)

Table 17 shows the purpose and expectations of participants in using the chosen CAM. Most of the sample (60%) used CAM to boost their immune system while achieving a tumor-free state (18%), reducing side effects (16%), and supporting full recovery (12%) were also significant reasons.

Table 17. Respondents' expectations and goals for CAM, number of cases, and percentages of sample (N=139)

CAM-related expectations and goals			
Strengthening the immune system	**83 (60%)**	Full recovery	16 (12%)
Reducing side effects	22 (16%)	Reducing pain	3 (2%)
Achieving tumor-free status	25 (18%)	Improving mood	6 (4%)
Prolonging life	7 (5%)	Other (Completers' answers translated verbatim): The missing minerals were replaced more quickly. Blood work confirms. Dietary supplementation Primary prevention and support for medical therapy Harmonization of body-mind-spirit unity	4 (3%)
Reducing suffering	1 (1%)		

The answers to the open question on the effectiveness of CAM methods can be found in the Appendix in Table 32 in a literal translation. 70 people responded to the open question on measuring the effectiveness of CAM products. When grouping their answers, almost half of the respondents (47.1%, 33 people) were found to see the effectiveness of CAM in improving their strength and activity. 24% (17 people) saw some test result (e.g., laboratory, ultrasound), 17% (12 people) felt an improvement in the functioning of their immune system (e.g., not catching seasonal colds or recovering more easily), and 12% (8 people) see a reduction in the side effects of chemotherapy as an indicator of the effectiveness of CAM.

The monthly amount spent by participants on CAM is detailed in Table 18. 49% of respondents spent between one and ten thousand HUF monthly on CAM.

Table 18. Monthly amount of money spent on CAM based on self-report, as a percentage of the sample (N=139)

Monthly expenses for CAM			
Do not use	9 (7%)	HUF 20 – 50 thousand	10 (7%)
HUF 1 – 10 thousand	**68 (49%)**	HUF 50 – 100 thousand	1 (1%)
HUF 10 – 20 thousand	13 (9%)	> HUF 100 thousand	1 (1%)

For ten people (7%), the CAM provider recommended some diagnostic tests.

Seven people named the test requested by the CAM provider in their own words. The responses were as follows in literal translation: What the surgeon asked for; All my test results; Blood test; Blood test, TSM, anti-TPO, vitamin D; Blood test, UH; All documentation + pulse diagnostics; omega 6:3 (blood test), pO2 (medical instrument).

4.2. Examining the associations of distress

4.2.1. The relationship of distress with sociodemographic, clinical, and psychological factors

Table 19. shows the results of Spearman's non-parametric statistics. The results highlighted here are significant at the .01 or .05 level. There was a negative relationship between anxiety (HADS-A) and Self-Rated Health and Social Support, and there was a positive relationship with HADS Depression, Depressive Coping, Chance locus of control, and the Stage of the Disease. Figure 7 illustrates the factors associated with anxiety.

Table 19. Results of Spearman's non-parametric statistics to examine the relationship between distress and sociodemographic, clinical, and psychological factors

	Spearman's rho	HADS-Anxiety	HADS-Depression
HADS-Anxiety	**Correlation Coefficient**	1,000	,651**
	Sig. (2-tailed)	.	,000
	N	139	139
HADS-Depression	**Correlation Coefficient**	,651**	1,000
	Sig. (2-tailed)	,000	.
	N	139	139
Age	**Correlation Coefficient**	-,006	,056
	Sig. (2-tailed)	,944	,514
	N	139	139
Number of People Living in a Household (NPLH)	**Correlation Coefficient**	-,147	-,222**
	Sig. (2-tailed)	,083	,009
	N	139	139
Number of Children	**Correlation Coefficient**	-,096	-,125
	Sig. (2-tailed)	,263	,143
	N	139	139
Perceived Financial Status	**Correlation Coefficient**	-,160	-,186*
	Sig. (2-tailed)	,062	,031
	N	136	136
Stage	**Correlation Coefficient**	,182*	,225**
	Sig. (2-tailed)	,032	,008
	N	139	139
Self-Rated Health (SRH)	**Correlation Coefficient**	-,293**	-,386**
	Sig. (2-tailed)	,000	,000
	N	139	139
Support Dimension Scale ("Social support")	**Correlation Coefficient**	-,298**	-,222**
	Sig. (2-tailed)	,000	,009

	N	139	139
FQCI Depressive and resigned coping ("Depressive coping")	**Correlation Coefficient**	,492**	,469**
	Sig. (2-tailed)	,000	,000
	N	139	139
FQCI Active and problem-focused coping ("Active coping")	**Correlation Coefficient**	-,088	-,152
	Sig. (2-tailed)	,304	,074
	N	139	139
FQCI Self-affirmation and distraction ("Self-affirmation")	**Correlation Coefficient**	-,133	-,407**
	Sig. (2-tailed)	,119	,000
	N	139	139
FQCI Searching for meaning and religious coping ("Religious coping")	**Correlation Coefficient**	,051	,035
	Sig. (2-tailed)	,554	,679
	N	139	139
MHLC Internal control	**Correlation Coefficient**	-,124	-,250**
	Sig. (2-tailed)	,146	,003
	N	139	139
MHLC Chance	**Correlation Coefficient**	,182*	,275**
	Sig. (2-tailed)	,032	,001
	N	139	139
MHLC Doctor and Others ("External")	**Correlation Coefficient**	-,082	,026
	Sig. (2-tailed)	,335	,761
	N	139	139

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

positive correlation, p<0.01 negative correlation, p<0.01
positive correlation, p<0.05 negative correlation, p<0.05

Figure 7. Correlates of anxiety

positive correlation, p≤0.01 negative correlation, p≤0.01
positive correlation, p≤0.05 negative correlation, p≤0.05

Depression (HADS-D) was negatively correlated with the number of people living in a household, Self-rated Health, Social Support, Self-affirmation and Distraction Coping, Internal Control, and Perceived Financial Status; furthermore, HADS-D was positively correlated with Depressive Coping, Chance locus of health control, HADS Anxiety, and the Stage of the Disease. Figure 8 illustrates the factors associated with depression.

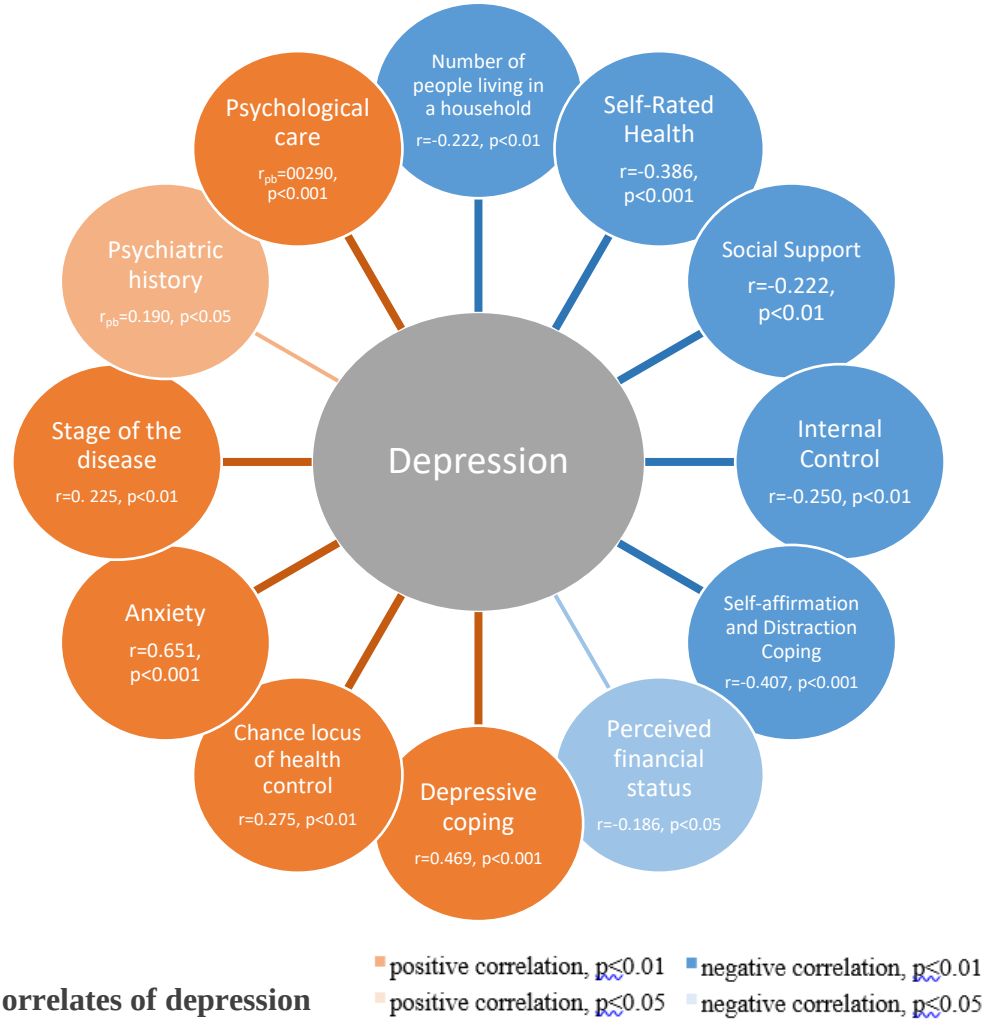

Figure 8. Correlates of depression

The correlation of dichotomous variables with the HADS scales was examined by calculating the point-biserial correlation coefficient (r_{pb}). This is calculated using a Pearson correlation with dichotomous variables 0 and 1. Table 33. in the Appendix shows the variables from which dichotomous groups were created.

Of the dichotomous variables, psychological care was positively correlated with distress, with both anxiety (r_{pb}=0,232 p<0,01) and depression (r_{pb}=0,290 p<0,001), which means that those who had received psychological care had significantly higher levels of both depression and anxiety. Psychiatric history was also positively correlated with distress,

with both anxiety (r_{pb}=0,207 p<0,05) and depression (r_{pb}=0,190 p<0,05), which means that those who had prior psychiatric or neurological problems had significantly higher levels of both depression and anxiety.

The results of the point-biserial correlation calculation are presented in tabular form in the Appendix (Table 34).

4.2.2. Examining predictors of distress

Table 35. shows the results of the multiple regression analysis for anxiety and Table 36. for depression in the Appendix.

The final model accounted for 38% of the variance in anxiety (F(14, 124) = 5.518, p<0.001). FQCI Depressive and resigned coping was positively related to anxiety; those who are more characterized by depressive coping (β=0.418, p<0.001) experience higher levels of anxiety.

Conversely, prior oncological treatment (β=-0.164, p=0.045), Support Dimension Scale (β=-0.193, p=0.016), and MHLC Internal control (β=-0.156, p=0.038) were found to be negatively associated with anxiety.

The remaining variables (Comorbid Somatic Disease, Stage, Number of people living in a household, Premorbid psychiatric/neurological disorder, Residence, Self-rated Health, FQCI Self-affirmation and distraction coping and Searching for meaning and religious coping, MHLC Chance, MHLC Doctor and Others) were not significant predictors of anxiety. Figure 9 illustrates the predictors associated with anxiety.

Psychiatric history and self-rated health status were initially found to be significantly associated with anxiety in the first models of the analysis. However, their influence decreased when all predictors were combined in the final model.

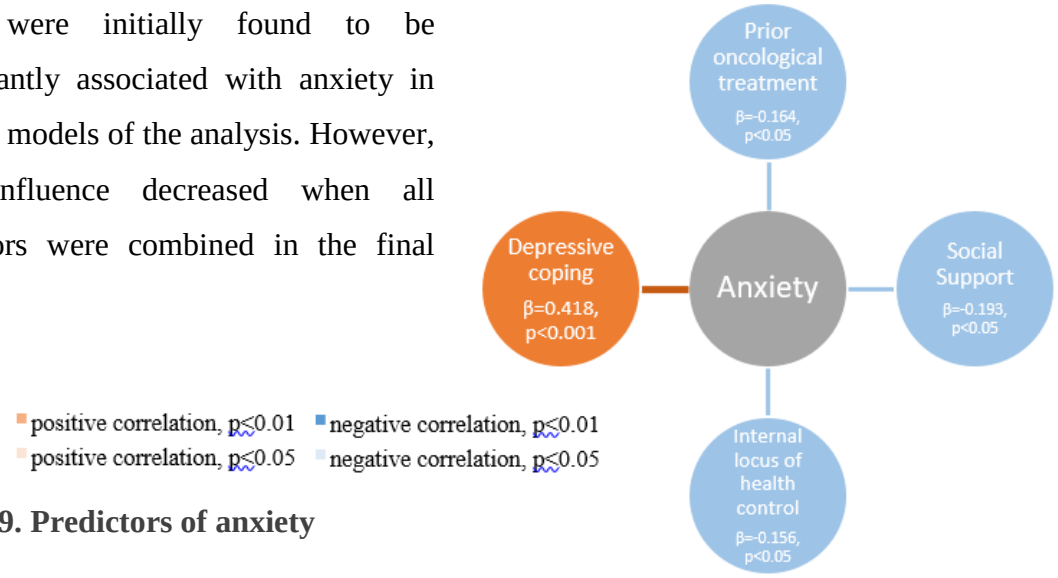

Figure 9. Predictors of anxiety

The final model accounted for 46% of the variance in depression ($F(14, 124) = 7.418$, $p<0.001$). FQCI Depressive and resigned coping was positively related to depression; those who are more characterized by depressive coping ($\beta=0.385$, $p<0.001$) experience higher levels of depression.

Conversely, FQCI Self-affirmation and distraction coping ($\beta=-0.263$, $p<0.001$) and MHLC Internal control ($\beta=-0.224$, $p=0.002$) were found to be negatively associated with depression.

The remaining variables (Comorbid somatic disease, Stage, Prior oncological treatment, Number of people living in a household, Premorbid psychiatric/neurological disorder, Residence, Self-rated Health, Support Dimension Scale, FQCI Searching for meaning and religious coping, MHLC Chance, MHLC Doctor and Others) were not significant predictors of depression. Figure 10 illustrates the predictors associated with depression.

Psychiatric history and self-rated health status were initially found to be significantly associated with depression in the first models of the analysis. However, their influence decreased when all predictors were combined in the final model.

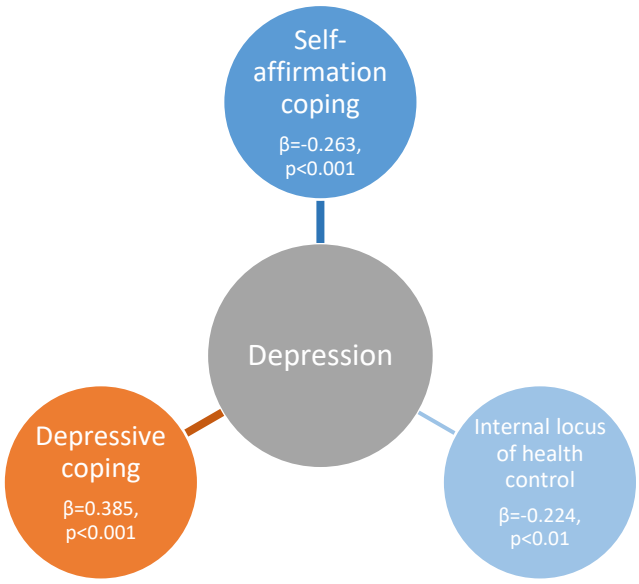

Figure 10. Predictors of depression

Table 20 summarizes the results of correlational and regression analyses of the associations between distress indicators and sociodemographic, psychological, and clinical factors.

Table 20. Summary table of associations of distress, operationalized as anxiety and depression, with sociodemographic, psychological, and clinical indicators

	Correlates	Predictors
ANXIETY	(-) Self-Rated Health	(-) Prior oncological treatment
	(-) Perceived Social Support	(-) Perceived Social Support
	(+) Depression	(-) Internal locus of health control
	(+) Depressive coping	(+) Depressive coping
	(+) Chance locus of health control	
	(+) Stage of the disease	
	(+) Psychiatric history	
	(+) Psychological care	
DEPRESSION	(-) Number of people living in a household	(-) Self-affirmation coping
	(-) Perceived financial status	(-) Internal locus of health control
	(-) Self-Rated Health	(+) Depressive coping
	(-) Perceived Social Support	
	(-) Self-affirmation coping	
	(-) Internal locus of health control	
	(+) Depressive coping	
	(+) Chance locus of health control	
	(+) Anxiety	
	(+) Stage of the disease	
	(+)Psychiatric history	
	(+) Psychological care	

4.3. Examining the associations of CAM utilization

Although the results of the analysis of the correlates of CAM use have been previously published in Hungarian (Koncz et al., 2019, 2020, 2021, 2022), since the total sample for the present analysis is narrower than in our previous publication for the reasons mentioned above, the results of the repeated analysis are reported in detail here.

4.3.1. The relationship between CAM use and socio-demographic data

Table 21 shows the relationship between CAM use and sociodemographic data.

Table 21. CAM use in the light of socio-demographic data

		Used CAM services in the last 12 months		Used CAM products in the last 12 months		Used CAM self-help practices in the last 12 months	
		No	**Yes**	**No**	**Yes**	**No**	**Yes**
Age	Young <40	11 (8%)	12 (9%)	5 (4%)	18 (13%)	7 (5%)	16 (12%)
	Middle-aged 40-64	54 (39%)	38 (27%)	23 (17%)	69 (50%)	26 (19%)	66 (48%)
	Older ≥65	21 (15%)	3 (2%)	9 (7%)	15 (11%)	15 (11%)	9 (7%)
Education	Primary & Secondary	33 (24%)	18 (13%)	19 (14%)	32 (24%)	24 (18%)	27 (20%)
	High	50 (37%)	35 (26%)	17 (13%)	68 (49%)	23 (17%)	62 (46%)
Residence	Urban	68 (49%)	45 (33%)	29 (21%)	84 (61%)	42 (30%)	71 (51%)
	Rural	17 (12%)	8 (6%)	8 (6%)	17 (12%)	6 (4%)	19 (14%)
Marital Status	Single	15 (11%)	10 (7%)	9 (7%)	16 (12%)	10 (7%)	15 (11%)
	Coupled	71 (51%)	43 (31%)	28 (20%)	86 (62%)	38 (27%)	76 (55%)
Number of People Living in a Household	1	10 (7%)	6 (4%)	8 (6%)	8 (6%)	8 (6%)	8 (6%)
	2 - 4	68 (49%)	42 (30%)	28 (20%)	82 (59%)	37 (27%)	73 (53%)
	5 or more	8 (6%)	5 (4%)	1 (1%)	12 (9%)	3 (2%)	10 (7%)
Number of Children	0	6 (4%)	8 (6%)	3 (2%)	11 (8%)	3 (2%)	11 (8%)
	1	19 (14%)	16 (12%)	14 (10%)	21 (15%)	16 (12%)	19 (14%)
	2 or more	61 (44%)	29 (21%)	20 (14%)	70 (50%)	29 (21%)	61 (44%)
Nature of Work	Blue-collar	18 (13%)	13 (10%)	11 (8%)	20 (15%)	8 (6%)	23 (17%)
	Whitecollar	47 (35%)	32 (24%)	17 (13%)	62 (46%)	27 (20%)	52 (39%)
	Not employed	17 (13%)	7 (5%)	9 (7%)	15 (11%)	11 (8%)	13 (10%)
Employment	Full-time	47 (34%)	33 (24%)	22 (16%)	58 (42%)	24 (17%)	56 (40%)
	Part-time	5 (4%)	8 (6%)	1 (1%)	12 (9%)	1 (1%)	12 (9%)
Perceived Financial Status	Below Average	9 (7%)	5 (4%)	6 (4%)	8 (6%)	6 (4%)	8 (6%)
	Average	60 (44%)	32 (24%)	22 (16%)	70 (50%)	34 (25%)	58 (43%)
	Above Average	15 (11%)	15 (11%)	8 (6%)	22 (16%)	8 (6%)	22 (16%)
		No	**Yes**	**No**	**Yes**	**No**	**Yes**
		Used CAM services in the last 12 months		Used CAM products in the last 12 months		Used CAM self-help practices in the last 12 months	

The correlates of CAM use (sociodemographic, psychological, clinical) were tested using Pearson's correlation coefficient (r) and point-biserial correlation coefficient (r_{pb}). Since the Pearson correlation calculation is utilized in both scenarios, the results for interval and dichotomous variables are displayed in a table featuring the Pearson correlation. Table 37 in the Appendix shows the correlations between CAM use and sociodemographic data. Different CAM services, products, and practices were highly correlated. CAM provider use was negatively correlated with age ($r=-0.204$, $p<0.05$), meaning younger people were more likely to use a CAM provider. CAM received from a physician was only correlated with other CAM variables. The use of CAM products was positively correlated with the number of people living in a household ($r=0.220$, $p<0.05$) and education ($r=0.189$, $p<0.05$): the more people a respondent lives within a household and the higher the educational attainment, the more likely she was to use CAM products. However, when vitamins were excluded, only correlations with other CAM variables showed in the results. When excluding vitamin use, people were excluded who do not use CAM products other than vitamins, leaving 68 people who use CAM products other than vitamins and 71 people who use vitamins or no CAM products.
The use of self-help practices was negatively correlated with age ($r=-0.182$, $p<0.05$) and positively correlated with the number of people living in a household ($r=0.186$, $p<0.05$) and education ($r=0.204$, $p<0.05$): younger, more highly educated respondents and those living with more people are more likely to use self-help practices.

Since relaxation techniques and visualization methods are among the self-help practices often used by psychologists who are also considered conventional healthcare providers, these techniques were also excluded from calculations. However, during the exclusion process, only two persons were found not to use any self-help techniques other than these methods. Those who used methods other than relaxation and visualization could not be excluded. Therefore, a separate correlation calculation by excluding the two individuals was not performed because the sample size difference was insignificant. There was considerable overlap in the use of self-help practices. Correlation analysis was carried out to investigate the co-occurrence of the different methods. Table 38 in the Appendix shows a strong correlation between the use of different self-help methods. The practice of meditation correlated with most other methods. Relaxation correlated with meditation

(r=0.562, p<0.001), yoga (r=0.244, p<0.05), visualization (r=0.665, p<0.001), prayer (r=0.415, p<0.001), and the category of other methods (r=0.380, p<0.01). Visualization correlated with meditation (r=0.588, p<0.001), relaxation (r=0.665, p<0.001), prayer (r=0.484, p<0.001), and the category of other methods (r=0.540, p<0.001).

The co-occurrence between healthcare use and different forms of CAM methods was also analyzed. Tables presenting the results of the correlation analysis between conventional healthcare and CAM providers, products, and methods can be found in the Appendix (Table 39-44). In the Appendix, Table 46 summarizes the significant correlations between these modalities, drawing a map of their co-occurrence. Since correlation analysis cannot detect causality, we consider these correlations co-occurrences.

To analyse aggregate CAM use, we created aggregate dichotomous variables. For the total CAM use aggregation, a value of 0 was assigned to the person who did not use any CAM and a value of 1 to the person who used some CAM modality. We did the same for the aggregation by CAM modality.

The sociodemographic correlates of aggregated CAM use are shown in Table 22. The negative correlation with age and the positive correlation with the number of people living in a household and marital status also remained significant in this case.

Table 22. Correlations of aggregated CAM use with sociodemographic data

		Aggregated CAM use
Conventional healthcare provider	**Pearson Correlation**	0,122
	Sig. (2-tailed)	0,154
	N	139
CAM provider	**Pearson Correlation**	,269**
	Sig. (2-tailed)	0,001
	N	139
CAM received from a doctor	**Pearson Correlation**	0,163
	Sig. (2-tailed)	0,055
	N	139
CAM products	**Pearson Correlation**	,661**
	Sig. (2-tailed)	0,000
	N	139
CAM products (excluding vitamins)	**Pearson Correlation**	,389**
	Sig. (2-tailed)	0,000
	N	139
Self-help practices	**Pearson Correlation**	,504**
	Sig. (2-tailed)	0,000
	N	139
Age	**Pearson Correlation**	-,232**
	Sig. (2-tailed)	0,006
	N	139

Number of people living in a household	**Pearson Correlation**	,218*
	Sig. (2-tailed)	0,012
	N	133
Number of children	**Pearson Correlation**	-0,029
	Sig. (2-tailed)	0,736
	N	135
Financial Situation Below Average/Averaga/Above Average	**Pearson Correlation**	0,009
	Sig. (2-tailed)	0,917
	N	136
Education: Primary&Secondary / High	**Pearson Correlation**	0,146
	Sig. (2-tailed)	0,091
	N	136
Residence: Urban / Rural	**Pearson Correlation**	0,024
	Sig. (2-tailed)	0,779
	N	138
Marital Status: Single / Coupled	**Pearson Correlation**	,195*
	Sig. (2-tailed)	0,021
	N	139
Nature of Work: Bluecollar/ Whitecollar	**Pearson Correlation**	0,084
	Sig. (2-tailed)	0,385
	N	110
Employment: Not employed/ Employed	**Pearson Correlation**	0,145
	Sig. (2-tailed)	0,095
	N	134

positive correlation, p<0.01
positive correlation, p<0.05
negative correlation, p<0.01
negative correlation, p<0.05

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

4.3.2. The relationship between CAM use and psychological factors

The psychological correlates of CAM use are presented in Table 45 in the Appendix. CAM provider visits positively correlated with Self-Rated Health (r=0.232, p<0.01), Social Dimension Scale (r=0.212, p<0.05), FQCI Searching for meaning and religious coping (r=0.208, p<0.05), and MHLC Internal control (r=0.205, p<0.05). It also showed a negative correlation with the HCAMQ CAM scale (r=-0.289, p=0.001). Thus, more favorable perceptions of health status, stronger perceived social support, searching for meaning and religious coping and internal control, and more favorable attitudes towards CAM were associated with more frequent visits to CAM providers. CAM from a doctor showed a positive correlation with the FQCI Searching for meaning and religious coping (r=0.212, p<0.05). The use of CAM products showed a positive correlation with the Social Dimension Scale (r=0.184, p<0.05) and the FQCI Searching for meaning and religious coping (r=0.182, p<0.05). Thus, more robust perceived social support and dominance of Searching for meaning and religious coping are more likely to be associated with using CAM products. However, these correlations disappeared when vitamins were

removed from the CAM products. Instead, there was a negative correlation with the HCAMQ CAM scale (r=-0.202, p<0.05) and a positive correlation with HCAMQ Holistic Health Beliefs (r=0.172, p<0.05). Thus, users of CAM products other than vitamins have a more favorable view of CAM and a preference for holistic medicine.

The use of self-help practices positively correlated with Self-Rated Health (r=0.177, p<0.05), the Social Dimension Scale (r=0.285, p=0.001), and the FQCI Searching for meaning and religious coping (r=0.432, p<0.001). Thus, respondents with a more positive perception of their health and stronger social support and those with a higher level of Searching for Meaning and Religious Coping were more likely to use self-help practices.

The psychological correlates of aggregated CAM use are presented in Table 23. In this analysis, out of the correlates, only perceived social support and religious coping remained significantly positively associated with CAM use.

Table 23. Correlations of aggregate CAM use with psychological data

		Aggregated CAM use
Self-Rated Health	**Pearson Correlation**	0,032
	Sig. (2-tailed)	0,711
	N	137
Social Dimenson Scale	**Pearson Correlation**	,274**
	Sig. (2-tailed)	0,001
	N	139
FQCI Depressive and resigned coping	**Pearson Correlation**	0,061
	Sig. (2-tailed)	0,475
	N	139
FQCI Active and problem-focused coping	**Pearson Correlation**	-0,018
	Sig. (2-tailed)	0,830
	N	139
FQCI Self-affirmation and distraction	**Pearson Correlation**	-0,038
	Sig. (2-tailed)	0,660
	N	138
FQCI Searching for meaning and religious coping	**Pearson Correlation**	,230**
	Sig. (2-tailed)	0,007
	N	138
HCAMQ CAM scale	**Pearson Correlation**	0,036
	Sig. (2-tailed)	0,675
	N	136
HCAMQ Holistic Health Beliefs	**Pearson Correlation**	-0,038
	Sig. (2-tailed)	0,661
	N	138
MHLC Internal control	**Pearson Correlation**	0,155
	Sig. (2-tailed)	0,068
	N	139
MHLC Chance	**Pearson Correlation**	0,010
	Sig. (2-tailed)	0,908
	N	139

positive correlation, p<0.01
positive correlation, p<0.05
negative correlation, p<0.01
negative correlation, p<0.05

nt
at

MHLC Doctor and Others	**Pearson Correlation**	0,069
	Sig. (2-tailed)	0,418
	N	139
HADS-Anxiety	**Pearson Correlation**	-0,084
	Sig. (2-tailed)	0,323
	N	139
HADS-Depression	**Pearson Correlation**	0,018
	Sig. (2-tailed)	0,835
	N	139

4.3.3. The relationship between CAM use and clinical data

Table 47 in the Appendix displays the findings from the correlation analysis investigating the relationship between CAM and clinical variables. Visiting a CAM provider positively correlated with comorbid somatic illness ($r=0.272$, $p<0.01$), so people with somatic comorbidity were likelier to visit a CAM provider. Moreover, the use of self-help practices showed a positive correlation with stage classification ($r=0.187$, $p<0.05$), psychological intervention received in the hospital ($r=0.315$, $p<0.001$), and comorbid somatic illness ($r=0.174$, $p<0.05$). Thus, individuals who had more advanced BC, had received some psychological intervention in the hospital, or had some somatic comorbidities were more likely to utilize some self-help practice.

Table 24 shows the correlation of clinical data with overall CAM use. The presence of comorbid somatic illness and psychosocial care received in the hospital showed a positive correlation with CAM use.

Table 24. Correlations of aggregated CAM use with clinical data

		Aggregated CAM use
Time from diagnosis to questionnaire completion	**Pearson Correlation**	-0,019
	Sig. (2-tailed)	0,822
	N	139
Time from first symptom to medical attention	**Pearson Correlation**	0,111
	Sig. (2-tailed)	0,196
	N	138
Time from screening test to doctor visit	**Pearson Correlation**	0,050
	Sig. (2-tailed)	0,568
	N	132
Stage classification based on TNM classification at diagnosis: early/locally advanced/advanced	**Pearson Correlation**	0,035
	Sig. (2-tailed)	0,690
	N	132
Psychosocial care provided at the hospital prior to completion	**Pearson Correlation**	,173*
	Sig. (2-tailed)	0,042
	N	139

Comorbid somatic disease	**Pearson Correlation**	,242**
	Sig. (2-tailed)	0,005
	N	131
Psychiatric, neurological medical history	**Pearson Correlation**	0,010
	Sig. (2-tailed)	0,904
	N	134
Family history of cancer	**Pearson Correlation**	-0,052
	Sig. (2-tailed)	0,548
	N	136
Systemic treatment (chemo, endocrine, biological) received before questionnaire	**Pearson Correlation**	0,001
	Sig. (2-tailed)	0,988
	N	139
Any oncological treatment received before the questionnaire	**Pearson Correlation**	0,064
	Sig. (2-tailed)	0,453
	N	139
Endocrine therapy	**Pearson Correlation**	-0,051
	Sig. (2-tailed)	0,552
	N	139
Type of Surgery during current admission: Cancer-related/Reconstruction	**Pearson Correlation**	0,086
	Sig. (2-tailed)	0,314
	N	139

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Figure 11 summarizes the results of the correlation tests for aggregate CAM use.

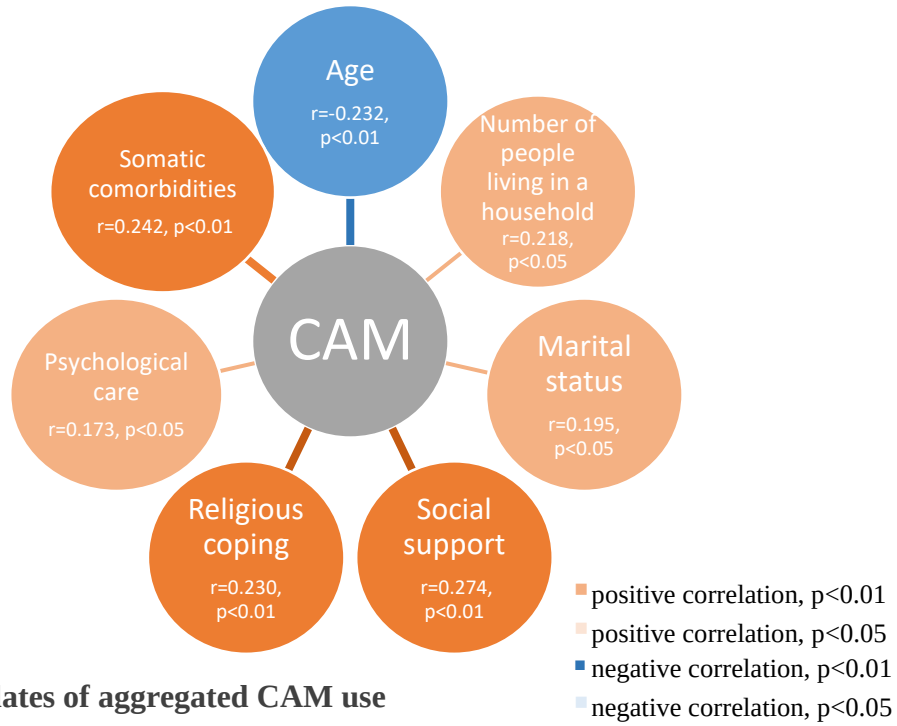

Figure 11. Correlates of aggregated CAM use

Figure 12 summarizes the results of the correlation tests for CAM provider use.

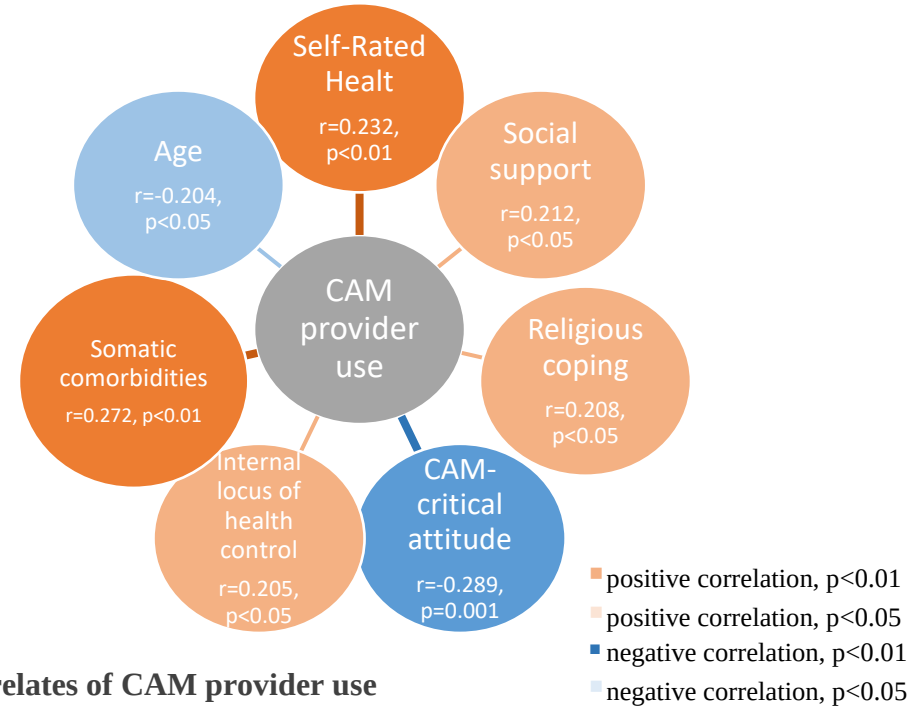

Figure 12. Correlates of CAM provider use

Figure 13 summarizes the results of the correlation tests for CAM received from a doctor.

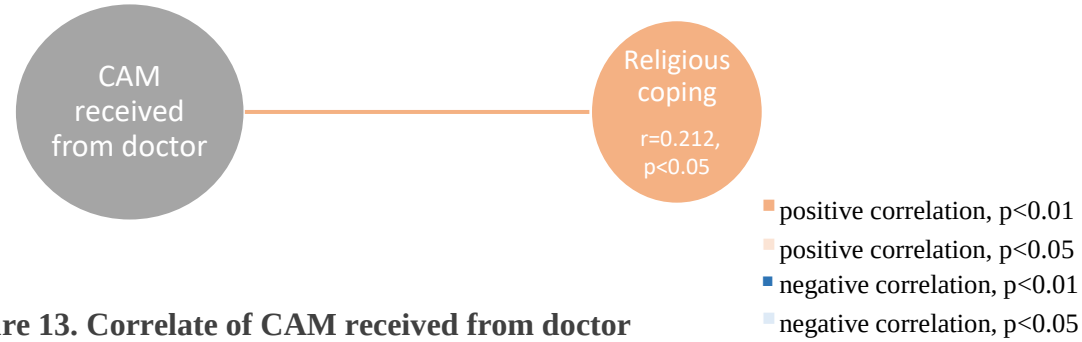

Figure 13. Correlate of CAM received from doctor

Figure 14 summarizes the results of the correlation tests for CAM product use.

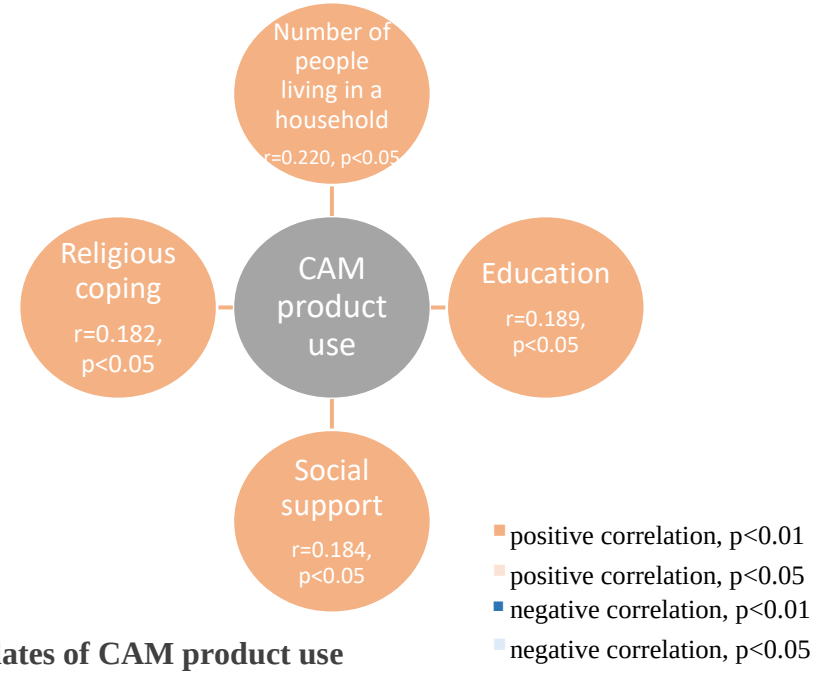

Figure 14. Correlates of CAM product use

Figure 15 summarizes the results of the correlation tests for CAM product use (excluding vitamins).

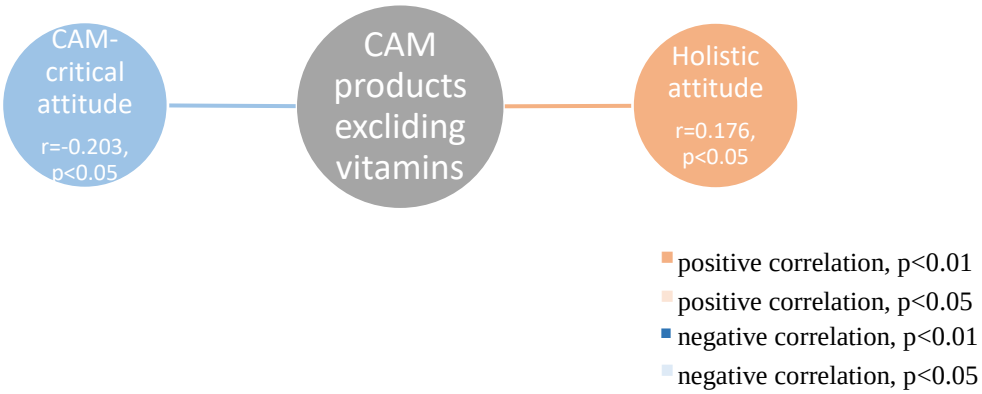

Figure 15. Correlates of CAM products (excluding vitamins) use

Figure 16 summarizes the results of the correlation tests for self-help practice utilization.

Figure 16. Correlates of self-help practice use

4.3.4. Examining predictors of CAM use

The results of the binary logistic regression analysis on the predictors of CAM use are detailed in Table 48 in the Appendix.

Binary logistic regression indicated that religious coping was a significant predictor of CAM utilization [Chi-Square=25.58, df=15, and p=0.018 (<0.05)]. The other sociodemographic, clinical, and psychological predictors were not significant. This one predictor "explained" 39.4% of the variability of CAM use among BC patients. FQCI Searching for meaning and religious coping was significant at the 1% level [Wald=6.834, p=0.009 (<0.01)]. The odds ratio (OR) was 2.877 (95% CI 1.303 – 2.877). The model correctly predicted 37.5% of cases where there was no CAM use and 98% of cases where there was CAM use, giving an overall percentage correct prediction rate of 89.7%. A patient with a more religious coping style was 2.9 times more likely to use CAM than a patient with a less religious coping style.

Age was a notable adverse predictor of CAM use in the initial two models, although this outcome diminished in the final model, where all predictors were included.

The results of the binary logistic regression analysis predicting CAM provider use are detailed in Table 49 in the Appendix.

Binary logistic regression indicated that Self-Rated Health, FQCI Searching for meaning and religious coping, and MHLC Internal control were significant predictors of CAM provider use [Chi-Square=31.897, df=15 and p= .007 (<0.05)]. The other predictors were not significant. All three predictors "explained" 32.2% of the variability of CAM provider use. Self-rated health, religious coping, and internal control are significant at the 5% level [SRH Wald=3.923, p=0.048 (<0.05); religious coping Wald=4.993, p=0.025 (<0.05); internal control Wald=5.465, p=0.019 (<0.05)]. The odds ratio (OR) for SRH was 1.308 (95% CI 1.003 – 1.705); for religious coping, the corresponding figures were 1.760 (95% CI: 1.070 – 2.890); and for internal control were 1.107 (95% CI: 1.017 – 1.206). The model correctly predicted 85.7% of cases where there was no CAM provider use and 66% of cases where there was CAM provider use, giving an overall percentage correct prediction rate of 77.8%. In the final model, a patient with a higher level of self-rated health was 1.3 times more likely; a patient with a more religious coping style was 1.8 times more likely; a patient with higher internal control was 1.1 times more likely to visit CAM providers than a patient with a lower level on these scales.

The results of the binary logistic regression analysis predicting CAM product use are detailed in Table 50 in the Appendix. The final model was not significant when conducting a binary logistic regression analysis to determine the predictors of CAM product use. There was no significant predictor of CAM product utilization.

The results of the binary logistic regression analysis predicting the use of CAM products (excluding vitamins) are detailed in Table 51 in the Appendix.

Binary logistic regression indicated that MHLC Internal control and MHLC Doctor and Others were significant predictors of utilization of CAM products excluding vitamins [Chi-Square=14.065, df=15, and p= .521]. The other predictors were not significant. All two predictors "explained" 15% of the variability of the use of CAM products, excluding vitamins. Internal control, and Doctor and Others were significant at the 5% level [Internal control Wald=5.686, p=0.017 (<0.05); Doctors and Others Wald=6.173, p=0.013 (<0.05)]. The odds ratio (OR) for Internal control was 1.099 (95% CI 1.017 –

1.118); for Doctor and Others the corresponding figures were 0.870 (95% CI: 0.780 – 0.971). The model correctly predicted 74.2% of cases where there was no CAM product use and 56.4% of cases where there was CAM product use, giving an overall percentage correct prediction rate of 65.8%. The MHLC Internal control was positive and the MHLC Doctors and Others control indicated negative predictive ability. Hence, patients with stronger internal control were 1.1 times more likely to use CAM products. Patients with stronger social external control were significantly less likely (0.87) to use CAM products other than vitamins.

The results of the binary logistic regression analysis predicting self-help practice utilization are detailed in Table 52 in the Appendix.

Binary logistic regression indicated that the Social Dimension Scale and FQCI Searching for meaning and religious coping were significant predictors of utilization of self-help practices [Chi-Square=48.759, df=15, and p< .001]. The other predictors were not significant. All the two predictors "explained" 47.1% of the variability of self-help practice use. Perceived social support was significant at the 5% level [Wald=4.690, p=0.030 (<0.05)], and religious coping was significant at the 0.1% level [Wald=14.893, p<0.001]. The odds ratio (OR) for perceived social support was 1.139 (95% CI 1.012 – 1.282); for religious coping, the corresponding figures were 3.464 (95% CI: 1.843 – 6.509). The model correctly predicted 65% of cases where there was no self-help practice use and 85.7% of cases where there was self-help practice use, giving an overall percentage correct prediction rate of 78.6%. A patient with a higher level of perceived social support was 1.1 times more likely; a patient with a more religious coping style was 3.5 times more likely to use Self-help practices than a patient with a lower level on these scales.

Table 25 summarizes the results of correlational and regression analyses of the associations between CAM indicators and sociodemographic, psychological, and clinical factors.

Table 25. Summary table of associations of CAM use with sociodemographic, psychological, and clinical indicators

	Correlates	Predictors
Aggregate CAM use	(-) Age	(+) Religious coping
	(+) Somatic comorbidities	
	(+) Number of people living in a household	
	(+) Marital status	
	(+) Perceived social support	
	(+) Religious coping	
	(+) Psychological care	
CAM providers	(-) Age	(+)Self-Rated Health
	(+) Self-Rateh Health	(+) Religious coping
	(+) Social support	(+) Internal locus of health control
	(+) Religious coping	
	(-) CAM-critiqe attitude	
	(+) Internal locus of health control	
	(+) Somatic comorbidities	
CAM received from a doctor	(+) Religious coping	none
CAM products	(+) Number of people living in a household	none
	(+) Education	
	(+) Perceived social support	
	(+) Religious coping	
CAM products, excluding vitamins	(-) CAM-critic attitude	(+) Internal locus of health control
	(+) Holistic attitude	(-) External locus of health control (Doctor and Others)
Self-help practice	(-) Age	(+) Perceived social support
	(+) Number of people living in a household	(+) Religious coping
	(+) Education	
	(+) Self-Rated Health	
	(+) Perceived social support	
	(+) Religious coping	
	(+) Stage of the disease	
	(+) Psychological care	
	(+)Somatic comorbidities	

5. DISCUSSION

The present thesis is the first to investigate the demographic, psychosocial, and clinical characteristics and their associations with distress and CAM utilization among women with BC during the perioperative period in Hungary. The international literature provides ample knowledge about perioperative distress and CAM use in this patient population during surgery. However, there is a significant lack of research in this area in Hungary. The primary goal of this dissertation was to explore this population's distress and CAM use characteristics and contribute to the literature regarding the Central-Eastern European (CEE) region.

5.1. Description of the sociodemographic, psychological and clinical characteristics of the sample

In the survey, all 139 respondents were female, with an average age of 51 years. The sample comprised primarily middle-aged, highly educated, urban, coupled women. Most of them had full-time professional jobs and considered their financial situation average. The majority of the sample completed the questionnaire after surgery. No effect of survey timing (pre-/post-surgery) was found on distress and therefore the pre- and post-surgery survey responses could be combined in the analysis.

The breast cancer patients in the sample rated their health as good and reported adequate social support. The most essential sources of social support were friends, offspring, and significant others.

Patients in the sample predominantly used active and problem-focused coping, followed by self-affirmation and distraction coping. Searching for meaning and religious coping was less prevalent, while depressive and resigned coping was the least prevailing. BC patients use various coping strategies to adapt to the challenges of the disease and its treatments, and they alternate between them during the stages of treatment (Lashbrook et al., 2018; Liu et al., 2021; Mehrabi et al., 2015). The most common coping styles identified in previous studies were seeking social support, emotion-focused coping (Mehrabi et al., 2015), and religious coping (Khazi et al., 2023). Present results suggest that Hungarian BC patients are similar to those from other countries and cultures in the predominant use of active coping; however, religious coping is less dominant.

Hungarian respondents almost equally rated their doctors and significant others, as well as internal control, as decisive in control over their health, indicating that respondents

value both their internal sense of control and the opinions of significant individuals, including their physicians. Based on the results of the Support Dimension Scale, it can be concluded that individuals with the most significant influence on patients' decisions are those who provide the most support, including friends, children, spouses, and doctors. The Hungarian validation of the MHLC measure with Hungarian cancer patients (Konkoly Thege et al., 2014) and another study conducted among BC patients (Bettencourt et al., 2008) yielded the same result. A previous study among women with BC identified internal and chance external as the most dominant locus of health control (Aarts et al., 2015; Iskandarsyah et al., 2014). In the present Hungarian sample, the dominance of control by doctor and others may be related to historical-cultural characteristics and may result from the remnants of authoritarianism, while internal control may reflect the influence of belonging to a Western cultural circle as an EU member state. Eastern European populations have lived under totalitarian regimes for decades, resulting in less autonomy, a heightened sense of hopelessness and learned helplessness, and a stronger belief in external control within these societies. (Erdos, 2010; Piko, 2002, 2004; Watson, 1995). However, regarding another cultural construct, the individualism-collectivism polarity, Hungary is an individualistic society (Neumann-Bódi et al., 2008), more akin to typical Western countries, and this Western characteristic may be reflected in the dominance of internal control beliefs. Also, the phenomenon of the empowered patient, which focuses on extended control over their health, is worth mentioning here. (Castro et al., 2016) The analysis of the complex socio-cultural context could be a significant avenue for future research.

31% of the participants were diagnosed at an early stage, 67% at a locally advanced stage, and 3% at an advanced stage. The current surgical treatment was the first oncological treatment for 30%, while 53% have received chemotherapy, 42% radiotherapy, 20% immunotherapy, and 31% endocrine treatment. A minority of the sample (41%) has a comorbid condition or psychiatric/neurological history (35%), while a larger proportion of the sample has a family history of cancer (68%). During the current hospitalization, 75% have undergone surgery for cancer, while 25% have undergone reconstructive surgery. 29% have been diagnosed with cancer for three months or less, while 35% were diagnosed one or more years ago. 16% received some form of psychosocial care in the hospital by the time the questionnaire was completed.

5.2. Description of the distress levels of the sample

Research question 1 focuses on the level of distress.

RQ1: What is the level of distress experienced by Hungarian breast cancer patients during the surgical period? Where does this lie in international comparison?

The mean values of distress in the sample, operationalized as anxiety and depression, were below the cut points; however, almost one-third (29%) of the sample reported clinically significant anxiety. These rates are lower than those reported for Mediterranean populations (e.g., 32% for Greece and 49% for Spain) but higher compared to Northern European countries (19% Sweden, UK 14% (Hashemi et al., 2020)). Furthermore, almost one-quarter (22%) of the sample reported clinically significant depressive symptoms, which is higher than in Western and Northern European countries (e.g., 15% Spain, 5% Germany, 8% Sweden, 14% Denmark) but lower than in Greece (38%) and some Central-Eastern European countries (37-40% Croatia and 77% Serbia, 61% Czech Republic (Pilevarzadeh et al., 2019)). In the USA, 41% of newly diagnosed BC patients indicated clinically significant distress before surgery (Hegel et al., 2006). In international comparison, the Hungarian sample has levels of anxiety and depression in the middle range.

5.3. Analysis of the correlates and predictors of distress

Research question 2 examines the assotiations of distress.

RQ2: Which demographic, psychological, and clinical characteristics are associated with the degree of distress? How does this compare with international experience?

Although over two-thirds of the sample had locally advanced or advanced stage BC, patients in our sample rated their health status on average as a seven out of 10. This seems to indicate that the stage of the disease does not determine the subjective perception of the state of health but instead finds a negative association with anxiety and depression. Studies have shown that in cancer patients, lower levels of self-rated health correlate with, among others, depression, and are strongly associated with mortality (Adeyemi et al.,

2021; Idler & Benyamini, 1997). This makes it a priority to identify and alleviate symptoms associated with subjective health perceptions.

The literature suggests that distress levels are expected to be significantly lower after surgery than before the operation. (Bárez et al., 2008; Burgess et al., 2005; Gallagher et al., 2002; Hashemi et al., 2020; Henselmans et al., 2010; Hinnen et al., 2008; Lacourt et al., 2023; Lam et al., 2007, 2010; Millar et al., 2005; Parker et al., 2007; Taurisano et al., 2022; Vahdaninia et al., 2010). Our results showed no difference in distress scores pre- and post-surgery. Previous studies measured post-operative outcomes within one week to one month after surgery. In the present survey, the questionnaire was completed during the typically two to three days long hospital stay. Presumably, the respondents had not yet had the opportunity to experience relief in such a short period, as they were still in hospital and had just come out of surgery. Apparently, patients need more time for the distress to dissipate.

According to the present results, lower anxiety levels appear to be associated with a more favorable self-rated health status and perceived stronger social support. However, higher levels of anxiety are associated with a positive psychiatric history, higher levels of depression, depressive coping, chance external control, and the stage of the disease. Lower levels of depression are associated with more people living in a household, a more favorable self-rated health status, perceived more robust social support, self-affirmation and distraction coping, a stronger sense of internal control, and a better financial situation. Higher levels of depression were associated with positive psychiatric anamnesis, depressive coping, a dominance of chance external control, higher levels of anxiety, and more advanced stages of the disease.

Most of these correlations have been confirmed by others. Self-rated health, coping mechanisms, perceived social support, financial status, sense of control, or a positive psychiatric history were linked to distress. (Bárez et al., 2007; Cai et al., 2022; Epping-Jordan et al., 1999; Gallagher et al., 2002; Henselmans et al., 2010; Kyranou, Puntillo, Dunn, et al., 2014; Mazanec et al., 2021; Ng et al., 2015; Pahlevan Sharif, 2017; Puigpinós-Riera et al., 2018; Renna et al., 2021; Singh et al., 2021; Stanton et al., 2005; Zamanian et al., 2021). However, others found that being divorced (Cai et al., 2022), younger (Avis et al., 2013; Bidstrup et al., 2015; Epping-Jordan et al., 1999; Härtl et al., 2010; Parker et al., 2007; Rottmann et al., 2016; Schlegel et al., 2012), or having children

(Dean, 1987; Deshields et al., 2006; Lindviksmoen et al., 2013; Schlegel et al., 2012) increase the risk of psychological morbidity; these relationships were not confirmed in our sample. Among sociodemographic characteristics, the Hungarian sample showed that perceived social support, the number of people living in a household, and perceived financial status were significant. These variables reflect Hungary's specific economic, geographical, and socio-cultural situation (Bod, 2015; A. Kovács et al., 2011). As previously explained, Hungary's history with totalitarian regimes and its current membership in the EU create a unique socio-cultural mix. The country's economic classification is also mixed. The World Bank (2023) classifies it as a high-income country together with Western-European countries, the United States and Australia. The International Monetary Fund (2023) classifies it as an Emerging and Developing Economy (EDE) along with countries such as Chile, Indonesia, Mexico, Poland, and others, in contrast to Advanced Economies (AEs). In the Hungarian sample, women with fewer social supports, fewer people to live with, and poorer economic status have higher levels of distress. This suggests that the financial situation plays a significant role in determining distress levels, which may be more critical in a country with fewer economic resources than in the more advanced 'Western' economies that make up the bulk of the international literature. Furthermore, we found a negative correlation between the number of people living in a household and depression. A previous study found no relationship between the two variables (Nausheen & Kamal, 2007). The number of people living in a household can be considered an aspect of perceived social support, whose protective effect against psychological morbidity has been widely studied and demonstrated (Avis et al., 2013; Kyranou, Puntillo, Dunn, et al., 2014; Nausheen et al., 2009). However, as a separate factor, number of people living in a household is understudied, potentially because three-generation households (where grandparents, parents, and grandchildren live together) are more common in CEE than in Northern or Western Europe or the USA (Glaser et al., 2018; Monostori, 2023). Therefore, the number of people living in a household is not identical to the marital status since in Hungary, as in other CEE countries, multi-generational cohabitation is common (Glaser et al., 2018). The number of children in a household should also be taken into account. Although this factor did not correlate with indicators of distress in this study and parenting has been reported in the literature as a risk factor for distress in women with breast cancer (Dean, 1987; Deshields

et al., 2006; Lindviksmoen et al., 2013; Schlegel et al., 2012), it may be a protective factor through cohabitation in Hungarian BC patients. Hence, the association between the population size in the household and depression can be considered a regional characteristic; the protective impact of multigenerational cohabitation or parenting on distress in the CEE region would merit further investigation.

Notably, further studies are necessary to accurately interpret these research findings and examine the complex impact and significance of compound socio-cultural and economic factors on women with breast cancer.

Among the clinical characteristics, only the stage of the disease correlated with distress scores in our sample, whereas the international literature shows mixed results. In some studies, tumor size and disease stage were positively associated with distress (Gallagher et al., 2002; Vahdaninia et al., 2010), while other results showed no such association (Epping-Jordan et al., 1999; Härtl et al., 2010; Lam et al., 2007). Type of treatment (Bidstrup et al., 2015) and surgery (Al-Ghazal, Fallowfield, et al., 2000; Al-Ghazal, Sully, et al., 2000; Berhili et al., 2019; Monteiro-Grillo et al., 2005; Roth et al., 2005), as well as comorbidities were also associated with higher levels of distress (Arneja & Brooks, 2021; Dai et al., 2022).

Looking at our results regarding the predictors of distress, we see that in the Hungarian sample, higher levels of anxiety are positively predicted by a depressive coping strategy and negatively predicted by any other prior oncological treatment received, more robust perceived social support, and internal control. Higher levels of depression are positively predicted by passive, depressive coping strategies, and negatively predicted by self-affirmation and distraction coping, and internal control. No other demographic, clinical, or psychological factors were found to be significant predictors of depression or anxiety. In other studies, sociodemographic variables (age, marital status, residence, education, religion; non-Caucasian ethnicity, lower socioeconomic status), clinical variables (stage of cancer, symptoms burden, symptoms of pain and fatigue, chemotherapy, longer primary treatment duration, more recent transition into survivorship, recurrence, menopausal/vasomotor symptoms, sleep disturbance, comorbidities, history of mental health problems, and perceived functioning limitations) and psychological characteristics (poor quality of family relationship and functioning, maladaptive problem and conflict

solving; lower social support) have been shown to be predictors of anxiety and depression in women with BC. (Lueboonthavatchai, 2007; Syrowatka et al., 2017; Tsaras et al., 2018) Notably, in our regression analysis on the Hungarian data, mainly psychological factors were found to predict anxiety and depression, with no such effect of sociodemographic or clinical variables. Passive, depressive coping was shown to be a risk factor for both anxiety and depression. However, internal control, perceived social support, self-affirmation and distraction coping, as well as the only non-psychological factor, prior oncological treatment, were protective factors against distress. For our Hungarian sample, past experience with the healthcare system is a crucial determinant of the experienced distress levels. The protective power of the perceived social support, internal control, and self-affirmation coping strategies was found to be stable across the analyses, while the relationship between self-rated health, number of people living in a household, and distress faded. Likewise, the positive association between distress and chance external control, stage of illness, and psychiatric history that appeared in the correlation analysis also disappeared in the regression analysis, with only the depressive coping strategy showing a risk enhancer association with distress.

Potentially, differences in demographic characteristics between Advanced Economies and Emerging and Developing Economies explain the lack of findings for demographic factors. This is illustrated in our finding that the number of people in the household is a protective factor, a characteristic seldom assessed in ACs where multigenerational cohabitation is uncommon.

5.4. Description of the characteristics of CAM use in the sample

Research question 3 focuses on the characteristics of CAM use and its assotiation with distress.

RQ3: What is the prevalence of CAM use among Hungarian women with breast cancer? Does the degree of distress determine CAM use in the Hungarian patient population?

The survey data showed that most participants (96%) had utilized conventional health services such as doctors, psychologists, physiotherapists, and dieticians within the past 12 months. This high rate is because the participants completed the questionnaire during

their hospital stay, which means that this rate is actually 100% and that we can only talk about the use of complementary therapies (CM) in this thesis and not alternative therapies. However, in cooperation with the language of the literature, we retain the term CAM, if only because the methods under study may be alternative treatments in other circumstances, depending on the patient's choice.

Participants were receiving conventional treatment while also implementing CAM methods and products. Thus, the high popularity of complementary therapies is shown by the fact that, in addition to conventional medicine, over one-third (38%) had sought treatment from a CAM practitioner, and 14% had received CAM services from a doctor. This is consistent with the results of a previous study, which reported that 18% of physicians incorporate CAM into their clinical practice. (Zörgő & Győrffy, 2016)

Most (73%) respondents reported using some form of CAM product. 37% of participants reported using herbs or herbal products, 61% used vitamins or minerals, 2% used homeopathic remedies, and 20% used other CAM products. Additionally, 66% of respondents engaged in self-help practices, such as prayer (44%), meditation (35%), relaxation techniques (22%), or yoga (20%).

These percentages are consistent with global statistics: the average usage of CAM among cancer patients is 51% (Keene et al., 2019), with rates ranging from 10% to 87% in Australia (Jones et al., 2019) and 26% in Sweden (Wode et al., 2019). In a prior Hungarian study (Sárváry & Sárváry, 2019), 84% of women diagnosed with BC utilized CAM. Biologicals were the study's most commonly used complementary medicine, with herbs (79%) and vitamins/minerals (60%) being the most popular. Other studies also have reported high usage rates of vitamins, minerals, and herbs (Bahall, 2017; Kessel et al., 2016; Molassiotis et al., 2005, 2006). In our sample, 66% of participants reported using self-help practices, which aligns with findings from other studies (Bahall, 2017; Farooqui et al., 2016). However, some researchers have reported lower prevalence rates of this CAM modality (Kessel et al., 2016; Molassiotis et al., 2005; Sárváry & Sárváry, 2019).

Our findings indicate that individuals utilizing CAM services, products, and self-help practices tend to be younger, reside predominantly in urban areas, possess tertiary education, work in professional fields, coupled, and have an average financial standing. A multitude of studies have shown similar socio-demographic characteristics of CAM users. (Farooqui et al., 2016; Fremd et al., 2017; Hammersen et al., 2020; Kessel et al.,

2016; Molassiotis et al., 2005, 2006; Pedersen et al., 2009; Soós et al., 2015; Tautz et al., 2012; Wanchai et al., 2010). However, some studies have found no association with higher education (Algier et al., 2005; Paul et al., 2013), and age (Kessel et al., 2016; Sárváry & Sárváry, 2019).

Study participants rated CAM received from a doctor as the most useful (2.82 on a three-point scale), followed by conventional healthcare services (2.75), then CAM providers (2.72), self-help practices (2.62), and finally CAM products (2.59). The results indicate a preference for CAM modalities trained healthcare professionals provide over self-administered interventions.

In terms of financial expenditure, half of the participants reported spending up to 10,000 HUF (approx. €26) per month on CAM products, while 16% spent between 10 and 50,000 HUF per month, with one person spending more than 100 thousand HUF per month on these products. On average, patients in Northern and Western Europe spend €50 per month for these products. (Hammersen et al., 2020; Wode et al., 2019). 66% of survey participants rated their financial situation as average, suggesting that variations in regional economic conditions could explain differences in average spending.

In our sample, most individuals opt for CAM after receiving medical advice (16%). Additionally, recommendations from relatives (15%), CAM providers (12%), fellow patients (12%), and information acquired from the Internet (12%) were also factors in the decision-making process.

The primary sources of information on CAM were friends (22%) or family members (13%), the internet (13%), and fellow patients (11%). Of note, health professionals - doctors, nurses, general practitioners, other physicians, and healthcare providers - were the primary source of information overall, accounting for 24% of the total. These data are consistent with the results of others. (Molassiotis et al., 2006; Tautz et al., 2012; Wanchai et al., 2010)

Most of the sample (60%) employed CAM to bolster their immune system. Meanwhile, attaining a tumor-free condition (18%), mitigating side effects (16%), and assisting with complete recuperation (12%) were also noteworthy motives. Among BC patients, a common motivation for CAM use is to boost the immune system, support conventional treatment, and reduce side effects (Hammersen et al., 2020). Reduction of psychological distress, regaining a sense of control, and dissatisfaction with conventional healthcare

may also be motivating factors (Lengacher et al., 2006). However, these were not dominant in our study. Since our survey was conducted in a hospital during surgical intervention, this may not be conducive to expressing critical views on conventional health care. Furthermore, the intention to regain control and reduce distress can be expressed when the individual is aware of these emotional processes, so this requires a degree of self-reflection and emotional proficiency that may not be a general skill or could be repressed during a strenuous life event. Furthermore, during the course of a life-threatening illness and a somatic intervention, the attentional focus may be more on somatic processes and less on psychological needs. Thus, the Hungarian sample did not show the association between CAM use and distress found in other studies (DiGianni et al., 2002; Stöcker et al., 2023).

Most individuals perceived that CAM positively impacted their vigor and physical capabilities. Some participants observed positive test results (e.g., from laboratory or ultrasound examinations), while others reported enhancements in their immune system's functioning (e.g., improved resilience to seasonal illnesses or quicker recovery from ailments). At the same time, a minority noted reduced chemotherapy side effects, all indicative of CAM's effectiveness.

5.5. Analysis of the correlates and predictors of CAM use

Research question 4 examines the assotiations of CAM use.

RQ4: Which demographic, psychological, and clinical variables influence CAM use?

Aggregating all CAM modalities, we found a negative correlation between the aggregate CAM use and age. Furthermore, a positive correlation was found with somatic comorbidity, the number of people living in a household, marital status, social support, religious coping, and receiving psychological care in the hospital. When examining the predictors of aggregate CAM use, only searching for meaning and religious coping remained a significant factor. Previous studies have also shown association between active coping (Söllner et al, 2000), religious faith (Pedersen et al, 2013), benefit finding (Garland et al, 2013) and CAM use.

The association of CAM utilization with younger age has been widely demonstrated (Fremd et al., 2017; Hammersen et al., 2020; Molassiotis et al., 2006; Pedersen et al., 2009; Tautz et al., 2012; Wanchai et al., 2010). However, regarding somatic comorbidity, others have found that having no comorbidity is a determinant of using CAM (Pedersen et al., 2009). In the Hungarian sample, those who had previously tried CAM for other physical conditions were probably more likely to use it for BC.

Although the importance of peer advice in the context of CAM choice has been widely researched (Molassiotis et al., 2006; Tautz et al., 2012; Wanchai et al., 2010), the association with social support has been less well studied. In the Hungarian sample, the importance of social support was reflected in several ways: women who were coupled, who had more social support and lived with more people preferred CAM. This highlights the importance of the regional sociocultural, cohabitation phenomena discussed earlier in relation to distress, underlining the role of those living with the affected woman not only in regulating distress but also in influencing CAM use.

The psychological care received in hospital is presumably related to CAM use through the acquisition of relaxation and imagination exercises, as the analysis of the correlations between the different modalities showed a correlation with self-help exercises.

CAM provider visits were negatively associated with age, HCAMQ CAM scale (reflecting a higher level of agreement with CAM due to score specificity), and positively correlated with self-rated health, perceived social support, religious coping, internal control, and presence of comorbid somatic illness. The predictors of CAM provider use were self-rated health, searching for meaning and religious coping, and internal control.

CAM received from a doctor showed positive correlations with religious coping alone. The use of CAM products showed a positive association with the number of people living in a household, education, perceived social support, and religious coping. Excluding vitamins from CAM products, only two significant correlations were found: a negative relationship with CAM-critical attitude and a positive relationship with holistic attitude. While no significant predictors were found for CAM product use, internal control showed positive predictive power after excluding vitamins, and external social control (doctor and others) showed negative predictive power. However, the overall model was not significant.

The use of self-help practices was negatively associated with age and positively correlated with the number of people living in a household, education, self-rated health, perceived social support, religious coping, stage of illness, psychological care received in the hospital, and comorbid somatic illness. Perceived social support, and searching for meaning and religious coping were significant predictors of self-help practice use.
In addition to younger age, higher educational attainment, higher income and social status, urban residence, oncological treatment received, longer time since diagnosis, worse stage classification, distress and control beliefs were also associated with CAM use among women with BC in the international literature (Fremd et al., 2017; Hammersen et al., 2020; Molassiotis et al., 2006; Nagel et al., 2004; Pedersen et al., 2009; Stöcker et al., 2023; Tautz et al., 2012; Vidal et al., 2013; Wanchai et al., 2010). In the Hungarian sample, education, stage and control beliefs, together with critical attitude towards CAM and accepting attitudes towards holistic approaches, were also found to be determinants. Although, other sociodemographic, psychological and clinical factors did not show an association with CAM use. Notably, financial status did not seem to be a determinant of CAM use, in contrast to the results of the only other Hungarian study (Sárváry & Sárváry, 2019) in this field.

BC patients in our study reported a mean score of 6.9 (SD 1.9) when rating their overall health. A comparison between these ratings and the TNM classification of their BC revealed that the self-rated health status is not associated with the stage of the disease. Nevertheless, our findings suggest a correlation between self-rated health status and visiting CAM practitioners and utilizing self-help practices while taking CAM medication does not show a significant association. The self-rated health of women who use self-help methods and visit a CAM provider is higher compared to those who do not. It is unclear which direction the association takes: women with positive perceptions of their condition are more likely to seek out CAM providers and use self-help practices, or vice versa. In cancer patients, symptoms such as pain, physical discomfort, fatigue, shortness of breath, and depression have been linked to adverse subjective health perceptions (Walke et al., 2007). A study also showed a positive relationship between CAM use and well-being (Rhee et al., 2019). As subjective health perceptions show a strong relationship with motility (Adeyemi et al., 2021; Idler & Benyamini, 1997), reducing symptoms and

improving subjective health perceptions may be of particular importance, and CAM may contribute to this. Further research is needed in this area.

Surveyed patients were more inclined to utilize CAM products than services, were committed to a holistic approach, were more critical of CAM, did not think it should be tried before conventional therapy, but did not reject CAM outright, so they were looking for the interrelationship of health factors and the ability to take responsibility for their own health rather than for another practitioner or treatment. In the sample, external social (doctor and others) and internal control dominate regarding health control beliefs. This, combined with the primary intention to strengthen the immune system and improve strength and well-being as the primary criteria for effectiveness, can be interpreted as patients showing a high interest in actively participating in the treatment process. They want to try self-help practices and preparations to support conventional medicine, rather than competing with it, in choosing complementary therapy.

Although some physicians support the use of CAM as it empowers patients and helps them become active in managing their conditions, as a study has shown that perceptions of control over the cause and the course of cancer had an independent significant influence on CAM use (Henderson & Donatelle, 2003); another study has presented evidence to the contrary. It suggested that a strong belief in the external locus of health control motivates patients to use CAM. (Ebel et al., 2015). Although both external and internal locus of health control dominates the sample, our analysis of CAM use associations suggests that internal control plays a more significant role in CAM choice. Therefore, our results confirm the importance of internal control in the decision-making process for CAM use.

Although a relationship between distress and CAM use has been found in the literature (Akyuz et al., 2019; DiGianni et al., 2002; Stöcker et al., 2023), this relationship was not confirmed in the present research. This result supports the view that patients would rather need appropriate psychological intervention to meet their psychological needs (Kim & Kang, 2022) as CAM is not proving effective in meeting these types of needs (Wu et al., 2023).

In the Hungarian sample, the most decisive predictive factor for CAM use was the searching for meaning and religious coping. Additionally, self-rated health, internal control, and social support were positively related to different modalities of CAM, while

social external control (doctor and others) was negatively correlated. In the Hungarian sample, CAM-related decisions appear to be influenced more by health control beliefs, meaning-seeking religious coping, and social support than by the degree of distress experienced.

The predominance of a holistic approach in the sample was reflected in the coexistence of a high rate of use of CAM modalities and a high level of trust in conventional medicine. A holistic approach is characterized by a search for interconnections, a desire for a comprehensive understanding of the processes of body and mind.

70% of participants consulted a doctor first when they received a cancer diagnosis, with the majority doing so promptly (59% within a month or less). This indicated a high level of trust in medical professionals. Additionally, the findings suggested that the conventional healthcare system users prioritize the conventional healthcare system, as 96% have utilized it in the past year.

A minor percentage of patients received CAM services from doctors (14%); however, doctors' recommendations primarily determine the choice of CAM methods or products (16% by doctor, 9% by healthcare professional). Patients mainly obtained information from healthcare professionals (24%), followed by sources such as friends, relatives, and the Internet. These figures demonstrate that some healthcare professionals discuss CAM use with patients. Considering the dominant influence of social external control (doctor and others) in the sample, it is evident that the information patients receive from individuals vital to them, particularly treatment personnel, significantly impacts their health-related behavior, including their choice of CAM. Healthcare providers should be aware of the patient's high level of trust in healthcare personnel and their strong desire to discuss information about CAM. Discussion of CAM use is vital due to the risks of drug-drug interactions. The objective of the treatment, based on adherence to therapy, is a mutual goal of both patients and doctors. This goal can be strengthened by creating a climate of trust to discuss CAM use, leading to reduced risks, better understanding of patient needs, and the provision of any required additional conventional treatments such as psychotherapy, dietary advice, or physiotherapy. The high usage of CAM and patient needs indicate that this pattern is expected to persist. If a patient cannot communicate their needs with their physician, there is a possibility that they may do so with a less competent person.

5.6. Outlook – A broader, clinical perspective on distress and CAM

Distress and CAM use impact adherence to oncological treatments, treatment efficacy (via neuroendocrine and behavioral effects or drug interactions), and survival. Our findings emphasize that psychosocial factors fundamentally influence both distress and CAM use. Therefore, psychosocial care is undoubtedly crucial in supporting BC patients.

5.6.1. Reflections on the question of integration

Considerable literature is available on the need to integrate psychosocial care into oncological treatment. However, finding a precise definition of integration will not be easy, nor are the yardsticks, criteria, and possible degrees of integration clear.

In clinical practice, some psychosocial professionals collaborate with the oncology treatment team in their daily work, thus forming a multidisciplinary team. In other models, psychosocial professionals are assigned to a specific department or unit within the hospital and go to the oncology wards on referral/request and carry out the assessment or patient care, following the functioning of the so-called Consultation-Liaison Psychiatry[5], providing a consultative service. Still, another model separates psychosocial care at the institutional level and offers it as part of an inpatient healthcare service for a few weeks after the active oncological treatment's termination, as seen in several European countries (Koncz, 2023). Looking at the different models, the question arises: Which type of collaboration can be considered integrated? How can we measure the quality and level of integration? Does the effectiveness of care or, rather, the location of professionals within the organization provide more information about the extent and nature of integration? If location, does it mean physical or organizational location? A professional and a group of professionals can also be characterized by their place in the communication and information network within the institution, as well as their 'place' in the hierarchy. Do these tend to describe the degree of integration? What is the relationship

[5] Consultation-Liaison Psychiatry is a specialized field of psychiatry that serves patients in general hospitals. A team of experts, including a psychiatrist, psychologists, psychiatric nurses, social workers, and other mental health professionals, typically comprise the liaison psychiatry team in a general hospital. They offer two types of support to patients in the hospital. The first is consultation, where the liaison psychiatrists assess patients at the request of the treating physician or surgeon of the patient. The second is a liaison, where the team works closely with their general hospital colleagues and may participate in the assessment or follow-up of outpatient clinic patients or attend ward rounds. (Stevens & Rodin, 2011)

between physical proximity and integration? Is integration between spatially distant forms of care conceivable?

Based on a previous literature review (Koncz, 2023), integration indicators may include good communication between healthcare providers, a transparent referral system, clear patient pathways and patient management, and knowledge of each other's competencies and roles. All three models mentioned previously, as well as combinations of them, can be considered integrated if they are transparent, predictable, and accessible to patients and professionals. Physical proximity and face-to-face meetings between professionals can facilitate this, as well as ongoing partner-like communication and daily contact. Meanwhile, working groups and departments may exist in clinical practice where professionals are not in actual contact with each other despite daily meetings and physical proximity.

Since the establishment of psycho-oncology, several psychosocial interventions have been developed and tested for effectiveness. The literature on this topic is now extensive. However, the question of the organizational framework and institutional structure has yet to be explored with which evidence-based interventions can be most effectively implemented. In particular, what are the structural, organizational, hierarchical, and communicative characteristics that are most conducive to the effective integration of psychosocial oncology care into cancer care?

Although these organizational issues are not within the scope of this present dissertation, the literature, the present findings, and my extensive clinical experience as a clinical psychologist working with cancer patients since 2012 highlight the importance of psychosocial care. As the high incidence of cancer in Hungary is almost uniquely associated with increased mortality, it may be benefitial to focus our attention on good practices that can reduce mortality even at high incidence. Examining the differences that may play a role in reducing mortality is crucial. Such differences include integrating psychosocial care and CAM into oncology care at the organizational level.

Since psycho-oncology originated in the United States, it is likely that most of the experience in terms of organized professional work has been accumulated there. Also, studying the good practices contributing to favorable prevalence and mortality data may be beneficial. Although they are probably the result of a combination of many factors, the main topic of this thesis, the psychological status and support of cancer patients, plays a

significant role, and it may be valuable to investigate best practices in this area. Experience has shown that best practice also includes the integration of CAM into oncological care and the organizational structure of cancer centers, so observations are being made on this as it may be part of the way to achieve better mortality figures. This section will give a broader context of the current research findings and present relevant best practices.

5.6.1.1. Examples of integrated psychosocial care and CAM

This section presents information about my Fulbright Fellowship and grants from the Rostóczy Foundation, which allowed me to study psychosocial oncology care in the United States in 2022. Although a thorough analysis of the experiences and observations made in the field would warrant a dissertation on its own, this section will only focus on the parts that provide a greater perspective for the present thesis. This dissertation closely relates to the clinical practice of psychosocial care and its potential for development. Therefore, three models of well-established and efficient psychosocial care will be presented to provide an outlook on the practical direction.

To briefly describe the fellowship and my work, I spent 11 months studying psychosocial oncology care in three states in the US at three comprehensive cancer centers. I spent three months at my first host in Texas, four months at my second host in Michigan, and finally, three months at my last host in New York. In all three institutions, my role was to observe daily clinical practice using the shadowing method, so I had the opportunity to round with psychologist and psychiatrist colleagues in the oncology wards, observe consultations with patients, and have case discussions with colleagues both mental health professionals and oncologists. I had discussions with clinical and administrative professionals on patient care's flow, structure, and functioning. I also gained insights into research work.

In the first model, the psychosocial oncology care unit was organizationally located within the clinical departments under the Division of Internal Medicine. The department is staffed by a research psychologist, eight psychiatrists, and six psychotherapists. It provides consultative care for inpatients based on the operating principle of Consultation-Liaison Psychiatry and 24-hour on-call service. Additionally, it runs an outpatient clinic where patients and their families can receive psychosocial support. There is no inpatient

ward in the Psychiatry Department. 91 social workers provide psychosocial support to inpatients and outpatients within the separate Department of Social Work. During the ward rounds, the social workers join the oncology team, and the specialists from the Psychiatry Department round the oncology wards separately. Providers in the Psychiatric Department require a referral from the attending physician, while care provided by a social worker is not subject to a referral.

The Department of Supportive and Palliative Medicine includes physical rehabilitation, palliative care, and integrative medicine. In this organizational structure, psychologists work within the Integrative Medicine Department. In addition to supportive psychotherapy, this department also offers integrative oncology physician consultations, acupuncture, exercise and physical activity consultations, health psychology, meditation, music therapy, nutrition consultations, oncology massage, and yoga. Figure 17 illustrates this institutional structure.

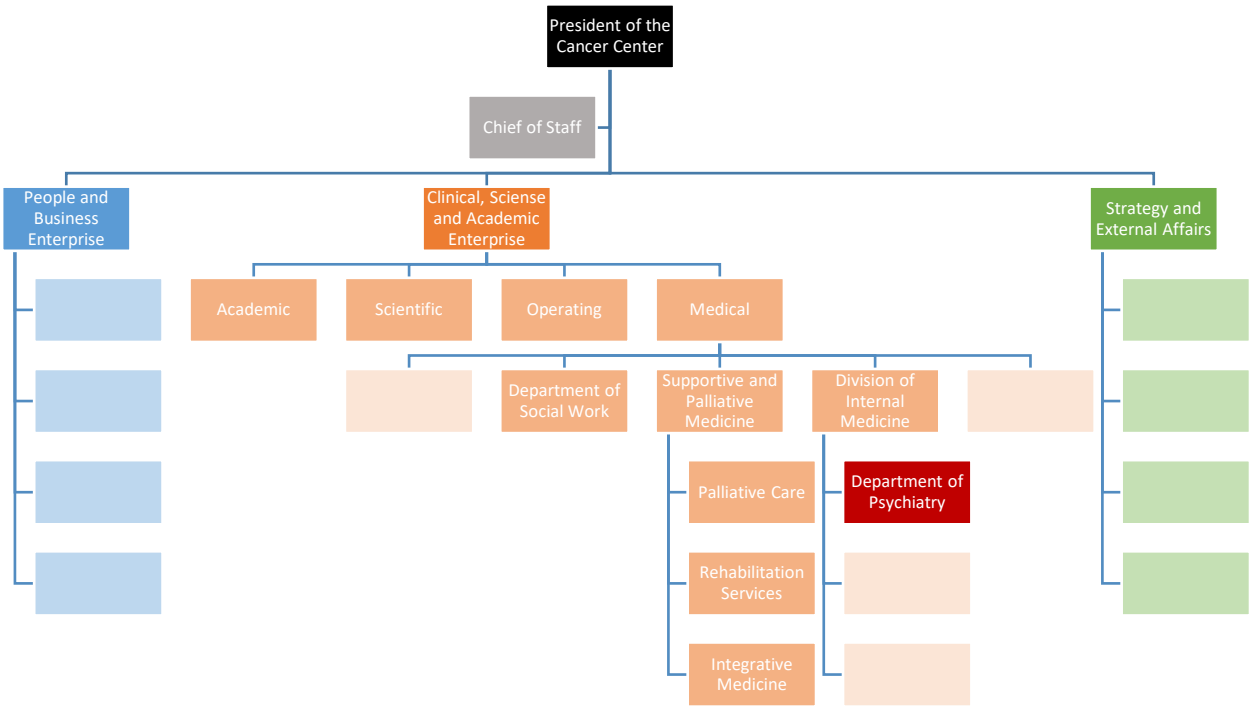

Figure 17. Model 1 of Psychosocial Oncology Care

The psychosocial oncology care team in the second model is affiliated with the Psychiatry Department of the General Hospital. They provide psychosocial care to inpatients at the Cancer Centre upon request, following the principles of Consultation-Liaison Psychiatry. They can transfer the oncology patient to the Department of Psychiatry for inpatient psychiatric treatment if necessary. Additionally, they operate an outpatient clinic for cancer patients and their families. Two psychiatrists and two clinical psychologists are available to the Cancer Centre every week, and the Department of Psychiatry also provides on-call services for the entire hospital complex. Throughout the hospital, 70 social workers are available for in-patients, 5 of whom specialize in cancer care and are also assisted by a therapy dog. 300 social workers provide psychosocial care for outpatients. Social workers round together with the oncology team, while psychiatrists and psychologists come to the oncology ward only on request to assess and treat patients. The Cancer Center has a Complementary Therapies Program. The following services are available to patients: Art Therapy, Expressive Writing, Families Facing Cancer (family support), Guided Imagery, Legacy Therapy, and Music Therapy. Figure 18 illustrates this institutional structure.

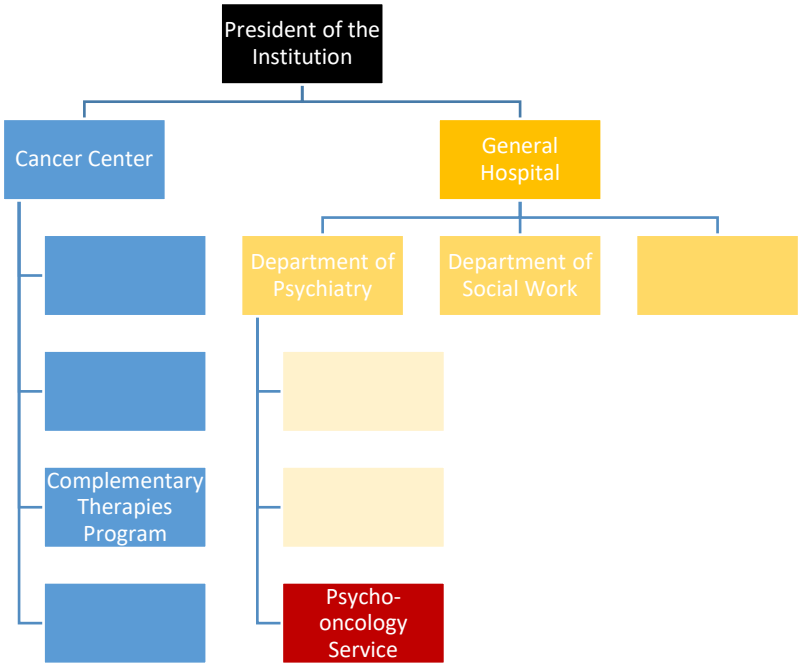

Figure 18. Model 2 of Psychosocial Oncology Care

The institution comprises two large units in the third model: the Cancer Centre and the Research Institute. The Department of Psychiatry is a clinical department within the Cancer Centre, staffed by 140 psychiatrists, clinical psychologists, and research psychologists. The 57 social workers are in a separate department. The Department of Psychiatry provides inpatient care and consultative work in the Cancer Centre wards, following the principles of Consultation-Liaison Psychiatry. Psychiatrists offer psychiatric care at the wards, and they also provide 24-hour on-call service at the Cancer Centre. The psychiatrists round together and discuss their cases every day, and the oncology care staff are consulted; however, they do not round together. Additionally, the department runs several specialized outpatient clinics for cancer patients and their families. Psychologists primarily work in these clinics.

Within the Department of Medicine is the Integrative Medicine Service, which provides evidence-based complementary therapies. The diverse multidisciplinary team includes medicine, acupuncture, massage therapy, creative arts therapies, mind-body therapies, and exercise. Figure 19 illustrates this institutional structure.

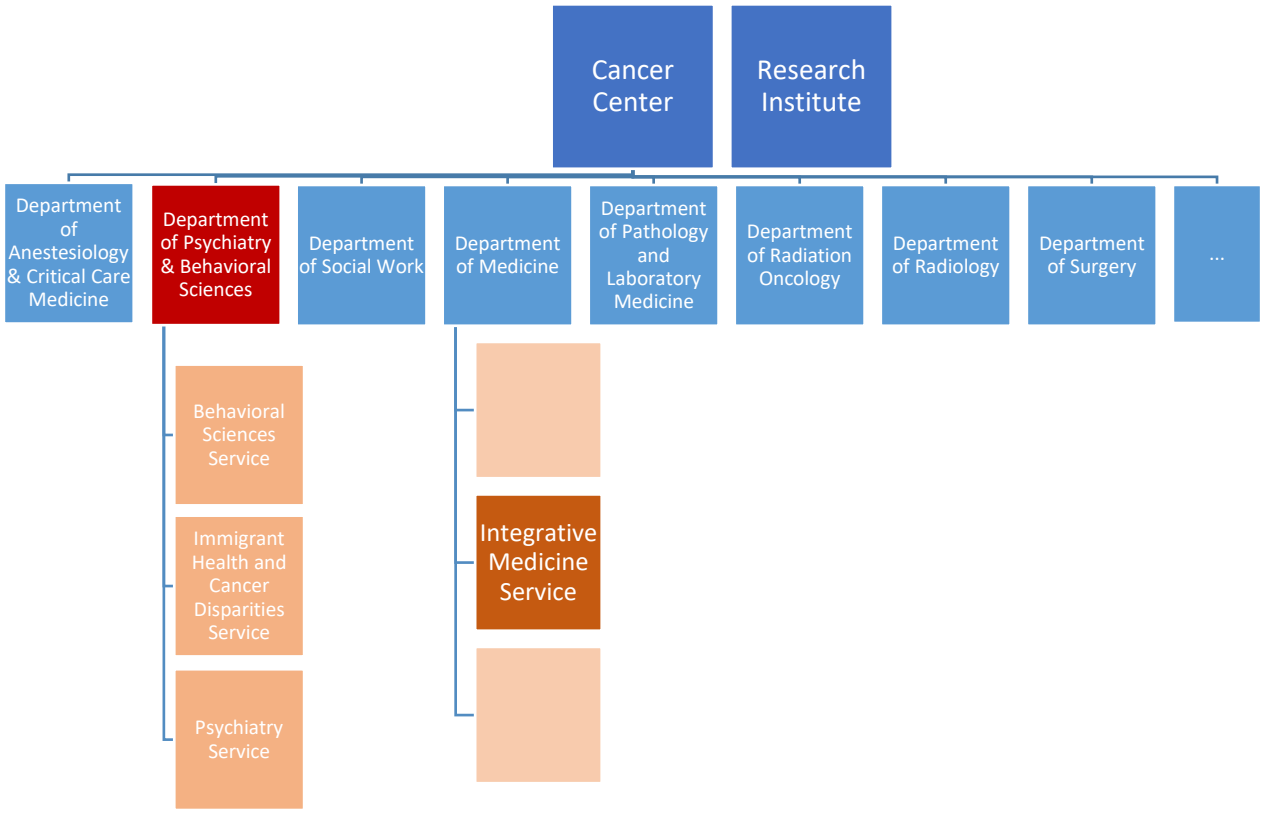

Figure 19. Model 3 of Psychosocial Oncology Care

5.6.2. Ethnic-based inequalities

In conclusion, one more critical point arises. In addition to geographical and economic differences, there are also ethnic and cultural differences in the incidence of BC.

In general, ethnic minorities have poor health status and access to health care compared to the majority of society (Williams & Sternthal, 2010), and health inequalities are pronounced (Braveman, 2014). In 1981, Brooks coined the term "minority stress" to describe the harrowing experiences faced by members of minority groups (Rich et al., 2020), and Meyer (Meyer, 2003) summarized the results of several studies to create a theory of minority stress. According to this, individuals belonging to socially stigmatized groups or ethnic minorities experience additional stress, resulting in a constant state of alertness and chronic distress, which affects the physical and mental health of the individual through psychological and physiological mechanisms (Williams et al., 2019).

Furthermore, fear of discrimination has a negative impact on the approach to the healthcare system (Alegría et al., 2002; Penman-Aguilar et al., 2016), and there is a disparity in the healthcare received by minority individuals versus the majority population (Green et al., 2007; Hoffman et al., 2016; Madan et al., 2006; Magyari-Vincze, 2006; Meghani et al., 2012).

A growing body of research shows that ethnic minority people have higher cancer incidence, mortality, and lower survival as well (Goss et al., 2009; Teng et al., 2016; Vaccarella et al., 2019; Ward et al., 2004). Ethnic minority people have also been shown to be underrepresented in oncological clinical trials (Wagar et al., 2022).

Notably, most of these studies come from the United States, Canada, or Australia. It is difficult to find studies on this topic in Europe, particularly in CEE, where ethnic minorities are very present, and data are much needed for informed intervention planning and health policy-making (Bhopal, 2009, 2012).

The Romani minority, which is the largest minority group in Hungary (Lajtai, 2020), has a cancer rate twice as high as that of the majority of the Hungarian population (Babusik, 2004). There are no statistics regarding BC incidence and mortality based on ethnicity in Hungary.

There are also inequalities in access to psychosocial cancer care (Grassi et al., 2016). Looking at ethnic differences in the level of distress experienced by cancer patients in the US, the Hispanic minority was found to have worse emotional symptoms, psychological

well-being, and quality of life (Luckett et al., 2011). Women with BC were also found to have a less favorable emotional experience of the Hispanic minority (Lacourt et al., 2023), while in terms of distress trajectories, the Black minority also showed less fortunate outcomes compared to the White majority (Madison et al., 2021).

There are no studies that have examined differences in the levels of distress experienced by women with BC in different minority groups in Hungary. However, Dégi and colleagues (Degi et al., 2007) have assessed the psychological characteristics of cancer patients from the Hungarian minority in Romania compared with the Romanian majority in Romania and the results with those of the Hungarostudy (the data on the Hungarian majority in Hungary). The analysis shows that Hungarians in Hungary have the lowest depression scores, while Hungarians in Romania have the highest.

Distress and CAM use among BC patients in minorities living in Hungary and among the Hungarian minority living across the border could be an essential focus of future research, as both groups are present in the Hungarian health care system, and therefore understanding their care needs and characteristics is essential for cost-effective care planning.

5.6. Limitations

Results are based on a relatively small sample size, thus limiting our power to detect other meaningful associations. Although the planned sample size was substantially larger, unusual and unavoidable effects such as the COVID-19 pandemic have significantly limited our research. Nevertheless, we did observe several expected and new associations of distress and CAM use with patient characteristics. As studies in clinical settings with similar sample sizes have been published in the major journals of the field (Cimprich et al., 2005; Gómez-Campelo et al., 2014; McFarland et al., 2018; Muzzatti et al., 2020; Schubart et al., 2014), we are hopeful that our results, in their limited way, can still contribute to the knowledge on this topic.

A limitation closely related to the sample size is the strength of the results of correlation tests. Most results show a significant but weak correlation. In order to verify these results and to achieve a larger effect size, it is worthwhile to design studies with a larger sample size in the confirmatory analysis phase of this topic.

Another limitation pertains to the site of recruitment. By recruiting from one center, the study findings cannot readily be generalized to the Hungarian BC patient population, as is evident from the observation that most patients in the study sample were highly educated, middle-aged, urban, and married. The length and characteristics of the questionnaire used may also have determined the willingness to participate in the survey and the composition of the sample.

The analysis did not focus on other important aspects, such as the functioning and characteristics of the health insurance system, which may also influence the results.

As regards the language of the thesis, although in most cases the usual passive form of scientific language has been used, the text is sometimes written in the first person singular because of the specificities of the passage. This research, like most, was a collaborative effort involving several experts, and I would have preferred to use the plural first person throughout, but this was limited by the specificities of the passage and the language.

Lastly, the survey was cross-sectional; therefore, the change of distress and CAM utilization over time and the factors that determine it could not be examined. No method can establish causality from the data collected in this way. The methods of analysis used in this research indicate co-occurrence, not causality.

Despite these limitations, the current study provides valuable information on distress and CAM use in Hungarian BC patients, as it is the first study of its kind.

5.7. Clinical implications

Present findings highlight the significance of identifying patients at a higher risk of distress during the perioperative phase. Based on the predictors, patients who have low social support or use passive, depressive coping strategies are particularly vulnerable and would benefit from frequent distress screening to receive timely intervention. This is especially important in countries like Hungary, where access to psychosocial oncology care is limited for cancer patients. Therefore, it is crucial to efficiently utilize the existing limited capacity for psychosocial care.

The protective power of prior treatment experience emphasizes the need for psychoeducational interventions to prepare for oncological treatments. This is especially important for newly diagnosed cancer surgery patients, particularly during the pre-operative period.

Our study outcomes have the potential to facilitate the customization of psychosocial interventions designed for other cultures by highlighting both similarities and differences. This, in turn, could stimulate the development of interventions that focus on specific characteristics, such as the possible significance of household members in interventions. Moreover, by identifying the factors associated with CAM usage, we can draw attention to the patient population that may benefit from education on these methods. Patients who are younger, possess higher levels of education, and have other comorbidities should receive more focus in this regard.

Furthermore, the correlation between self-rated health status and distress, along with the use of CAM providers and self-help techniques, holds great importance. As a result, managing distress and discussing CAM use may enhance quality of life, improve adherence to oncology treatments, and ultimately increase survival rates.

6. CONCLUSIONS

This thesis shows the merit of studying distress, CAM use, and their associated factors in less researched countries, such as Hungary; while many factors alike findings in the literature, we observed several differences, among which a more substantial influence of psychological characteristics as compared to demographic and disease-related factors and differences in the contribution of coping styles and locus of health control.

While the active coping strategies of Hungarian BC patients were similar to those in other parts of the world, religious coping was less common. Health-related locus of control was predominantly attributed to doctors and significant others or internal control, which can be explained by historical-cultural specificities. In contrast to previous studies, only perceived financial status and the size of cohabitation out of sociodemographic data were associated with distress levels in our sample. In addition, the number of people living in a household emerged as a regional specificity, as a separate aspect of social support, thus drawing attention to the vital role of the people living with the patient (who in this region are often not the spouse) in the treatment process. Furthermore, of the clinical data, only the stage showed a link. In regression analysis, previous oncological treatment experience, stronger social support, and internal control seemed to be protective factors against anxiety. Self-affirmation and distraction coping, and internal control were protective factors against depression. While passive, depressive coping was a risk factor for both anxiety and depression.

Notably, distress was predicted by psychosocial factors and prior experience with oncological treatment. This draws attention to the importance and necessity of well-timed and targeted psychosocial care, as these findings suggest that it is mainly by influencing psychosocial factors that distress levels in BC patients can be affected and adherence and survival promoted.

Notably, self-rated health is negatively associated with distress and positively related to CAM provider use and self-help practice utilization. As self-rated health is strongly correlated with mortality, improving subjective perceptions of health and quality of life is paramount, and our data suggest that distress management and some CAM modalities may play a role in this.

Several studies worldwide have investigated the level and trajectories of distress in BC patients, although most have focused on the post-treatment period. Since higher distress

is associated with poor adjustment to cancer and treatment and worse prognosis, screening the level of distress during the treatment process and the well-timed and targeted psychosocial interventions are paramount. However, detecting these factors and symptoms and the degree of distress that requires treatment is becoming increasingly difficult as BC surgery in Western countries shifts more and more towards same-day surgery. In this case, welcomed advances in medical technology carry the risk that a proportion of BC patients with clinically significant psychological symptoms may go undetected and untreated (Jørgensen et al., 2015). This is why it is essential to introduce routine screening for distress at every medical appointment and to make preoperative psychoeducation part of the preoperative protocol.

In this research, a significant number of women with BC reported using CAM. The findings of the thesis indicate that Hungarian patients do not use CAM to treat distress but desire to play an active role in fighting cancer while supporting conventional oncological treatments. Moreover, patients hold high confidence in their physicians and rely heavily on their medical expertise to inform their decisions regarding complementary therapies. It is crucial to address the use of CAM during medical consultations, even if initiated by the physician, to encourage patient involvement in their treatment and promote adherence while minimizing risks. The widespread acceptance of CAM use among patients is evident. If this topic is not discussed between the doctor and patient, there is a chance that the patient may have discussions about it with someone who is not as qualified, which may result in a significant risk to their cancer treatment.

The importance of the number of people living in a household, which can be considered a regional specificity, was also shown for CAM use. However, among the expected correlates, the financial situation was not significant for CAM use. Hence, money does not appear to be a determinant of the choice of CAM to fight a life-threatening disease among Hungarian patients, which is specific given the region's less resourced economic situation, highlighting the determination of a person with cancer. Self-rated health, perceived social support, control beliefs, as well as meaning-seeking and religious coping proved to be the strongest determinants of CAM choice.

Given the persistently high cancer mortality rate in Hungary, even with modern oncological treatments available, it is crucial to study good practices associated with better mortality rates despite high incidence. This research was supplemented by

observing good practices and describing three models focusing on psychosocial oncology care and integrated CAM as a significant difference from the Hungarian care system. Our broad contextualization was complemented by identifying a substantial gap in Hungarian studies. The collection of data by ethnicity is a complete white spot in the study of breast cancer incidence, prevalence, and distress, as well as CAM use among breast cancer patients.

6.1. The original findings of the dissertation and its contribution to state of art

1. For the first time in Hungary, the level of distress in breast cancer patients during the surgical period has been investigated.
2. For the first time in Hungary, CAM use and attitudes towards CAM in breast cancer patients during the surgical period were investigated.
3. For the first time in Hungary, the association of breast cancer patients' distress level and CAM use with sociodemographic, psychological, and clinical factors in the perioperative period has been investigated.
4. In Hungary, 29% of breast cancer patients have clinical anxiety symptoms, and 22% have clinical depressive symptoms during the surgical period.
5. There was no difference between pre- and post-operative distress levels; therefore, presumably, patients need more than a few days to experience relief.
6. The determinants of distress show regional sociocultural specificities, among which the thesis identified the number of people living in a household as a separate aspect of social support. This specific factor also increases the prevalence of CAM use.
7. No association between distress and CAM use among Hungarian women with breast cancer.
8. The distress level of Hungarian women with breast cancer is mainly influenced by psychological factors, which emphasizes the importance of psychological interventions in distress management.
9. CAM use is primarily determined by self-rated health status, perceived social support, health control beliefs, as well as searching for meaning and religious coping, reflecting a desire to to improve well-being and participate actively and meaningfully in treatment, as well as the importance of social support.

7. SUMMARY

Hungary has the highest cancer mortality rate in the European Union. The incidence and mortality rates of breast cancer in Hungary are higher than the regional average. Distress is a natural emotional reaction that accompanies cancer, although half of cancer patients experience distress requiring treatment, which can affect adherence to oncological treatment and survival. Although the importance of integrating psychosocial care into primary oncology treatment is now evidence-based, its availability is still limited to patients in Hungary. Individuals diagnosed with a life-threatening illness may be motivated to explore all possible avenues of recovery. Additionally, unmet psychosocial needs may lead to the choice of complementary and alternative medicine. However, this choice may pose health risks for patients.

Distress and CAM use among breast cancer patients have been extensively assessed in international literature. However, there is limited data available on these topics in Hungary. This dissertation aimed to address this gap.

In this exploratory quantitative study, for the first time in Hungary, the distress levels and CAM use were assessed among Hungarian women with breast cancer during the surgical period in relation to sociodemographic, psychological, and clinical data. The results demonstrate a high degree of similarity with the international findings. However, some local characteristics were also identified. For both distress and CAM use, significant associations were found mainly with psychological factors. The protective role of household size in relation to distress is noteworthy, as it appears to be a regional specificity and sheds new light on the protective potential of social support. The data on CAM use, in addition to highlighting patients' openness and interest in such methods, indicate trust in conventional healthcare and Hungarian patients' need for active participation in treatment. The data support the significance of screening for distress and managing it with well-planned and timed psychosocial interventions. Additionally, open communication about CAM should be integrated into oncology treatment for auditability and patient education, in line with the international literature.

Three models of best practice were also described in which psychosocial oncology and some evidence-based CAM modalities are integrated into oncology care at the institutional level. Furthermore, critical areas for future research were emphasized: the institutional integration of care modalities, and the ethnic perspective on breast cancer.

7. ÖSSZEFOGLALÁS

Az Európai Unió országai közül Magyarországon a legmagasabb a rákbetegséghez kapcsolódó halálozási arány. Az emlőrák incidenciája és mortalitása is magasabb a regionális átlagnál. A distress a megbetegedést és kezelését kísérő természetes érzelmi reakció, ám a betegek fele klinikai mértékű (azaz beavatkozást igénylő) distresszt tapasztal, ami befolyásolhatja az onkológiai kezeléssel való együttműködés képességét és a túlélést. A pszichoszociális ellátás onkológiai integrációjának jelentősége ma már bizonyítékokon alapul, Magyarországon azonban korlátozottan áll a betegek rendelkezésére. A potenciálisan életet veszélyeztető betegséggel diagnosztizált személyek motiváltak lehetnek a gyógyulás minden lehetséges útjának felkutatására. Ebből adódóan a kielégítetlen pszichoszociális szükségletek a kiegészítő és alternatív medicina (KAM) választásához is vezethetnek. Ez a választás azonban egészségügyi kockázatokat jelenthet a betegek számára.

A nemzetközi szakirodalom gazdag az emlőrákkal küzdő betegek distress-szintjének és KAM-használatának felméréséből származó adatokban, azonban meglehetősen limitáltak ismereteink e témákban a magyar betegpopuláció kapcsán. Jelen disszertáció ezt a hiányt kívánta kitölteni. Ebben a feltáró, keresztmetszeti, kvantitatív vizsgálatban - Magyarországon először - a distressz szintjét és a KAM-használatot vizsgáltuk magyar emlőrákos nők körében a műtéti időszakban, szociodemográfiai, pszichológiai és klinikai adatokkal összefüggésben. Az eredmények nagyfokú hasonlóságot mutattak a nemzetközi adatokkal, ugyanakkor néhány helyi sajátosságot is megvilágítottak. Mind a distressz, mind a KAM-használat elsősorban pszichológiai tényezőkkel mutatott szignifikáns összefüggés. Figyelemre méltó regionális sajátosságnak bizonyult az egy háztartásban élők számának védő hatása a distresszel szemben. Az adatok alátámasztják a distressz szűrésének, valamint jól megtervezett és időzített kezelésének jelentőségét. Emellett a nemzetközi szakirodalommal összhangban kiemelendő, hogy a KAM-ról szóló nyílt kommunikációt az ellenőrizhetőség és a betegoktatása érdekében be kell építeni az onkológiai konzultációba. A jó gyakorlatok három olyan modellje is bemutatásra került, amelyekben a pszichoszociális ellátás és néhány bizonyítékokon alapuló KAM-módszer intézményi szinten integrálódik az onkológiai ellátásba. Valamint a disszertáció rámutat a jövőbeli kutatás kritikus területeire: az ellátási módok intézményi integrációjának kérdésére és az emlőrák etnikai perspektívájára.

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Koncz, Zs. (2022, Nov 23) Psychosocial Care in Central-Eastern Europe: Presentation from a Personal Perspective. [Invited lecture at Psychotherapy Case Conference at Memorian Sloan Kettering Cancer Center, New York City, New York, USA during the Fulbright Scholarship]

Koncz, Zs. (2022, Oct 26) Introduction of Current Psychosocial Oncology Care in Hungary and
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Koncz, Zs. (2022, April 13) Introducing Hungary and its Psychosocial Oncology Care [Invited lecture at MD Anderson Cancer Center, Department of Psychiatry, Houston, Texas, USA during the Fulbright Scholarship]

Koncz, Zs. (2022, February 5) Characteristics of Complementary and Alternative Medicine Utilization Among Women with Breast Cancer During Perioperative Phase. [Invited lecture]. The XXVIIIth St. Agatha Mammologist Day, online international conference broadcasted from Budapest, Hungary.

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Koncz, Zs., Mátrai, Z., Győrffy Zs. (2021, July 7-8) Characteristics of Complementary and Alternative Medicine Use Among Hungarian Breast Cancer Patients in Perioperative Phase. [Conference presentation]. PhD Scientific Days 2021, Budapest, Hungary.

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Koncz, Zs., Győrffy, Zs. & Mátrai, Z. (2021, June 9-12) Psychological Characteristics and Complementary and Alternative Medicine Choices of Women with Breast Cancer during the Surgical Phase. [Poster presentation]. The XXIVth Roaming Conference of the Hungarian Psychiatric Association, VIRTUAL.

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Koncz Zs.: Az onkológiai kezelések pszichoszociális aspektusai 3.: Sebészeti beavatkozások. Az előadás elhangzott: Onkopszichológia a klinikai gyakorlatban. Online konferencia, 2021.02.23. – 02.26. – felkért előadás

Koncz, Zs. (2021, February 23 – 26) Psychosocial Aspects of Oncological Treatments 3.: Surgical Interventions. [Invited lecture]. Onco-psychology in Clinical Practice. Online Conference from Budapest, Hungary

Koncz, Zs. (2021, February 6) Psychological Characteristics and Care of Women, and Their Families, at Increased Risk of Breast Cancer. [Invited lecture]. The XXVIIth St. Agatha Mammologist Day, online international conference broadcasted from Budapest, Hungary.

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Koncz, Zs., Mátrai, Z., Győrffy Zs. (2020, August 31 – September 1) Psycho-social and Clinical Characteristics of Complementary and Alternative Medicine Use in Hungarian Women with Breast Cancer [Poster presentation]. PhD Scientific Days 2021, Budapest, Hungary.

IV. Emlőrák Konszenzus Konferencia, Kecskemét, 2020.08.28-29. Emlőrák: gondozás, rehabilitáció, pszichoonkológia című panel társszerzője, előadója

Koncz, Zs, et al. panelist. (2020, August 20-21) Breast Cancer - Care, Rehabilitation, Psycho-oncology [Panel discussion]. The IVth Breast Cancer Consensus Congress, Kecskemét, Hungary.

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Koncz, Zs. (2019, February 28 - March 2). The Psychosocial Aspects of Treatment in Tumor and Sarcoma Patients [Invited lecture]. Psycho-oncology in Clinical Practice Workshop, National Institute of Oncology, Budapest, Hungary.

Koncz Zs.: Állandó és változó tényezők az orvos-beteg kapcsolatban - onkopszichológiai nézőpont régen és most. Az előadás elhangzott: XXV. Szent Agáta Mammológus Nap, 2019. február 2. OOI, Budapest. – felkért előadás

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Koncz Zs., Mátrai Z., Győrffy Zs.: Műtétre való lélektani felkészülést segítő pszichológiai intervenciós lehetőségek és hatásuk emlőrákos nők esetében – szakirodalmi áttekintés. A poszter bemutatásra került: Magyar Pszichiátriai társaság XXII. Vándorgyűlése, Győr, 2019.01.23-26.

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Koncz Zs., Gődény A., Kovács P.: Műtétre való pszichológiai felkészítés jelentősége és lehetőségei. Az előadás elhangzott: IV. Test – Lélek Konferencia, Budapest, 2018.11.30. – felkért előadás

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Koncz Zs., Kovács P., Mátrai Z.: Emlőrákos nők pszichoszociális jellemzőinek vizsgálata az Országos Onkológiai Intézet Emlő- és Lágyrészsebészeti Osztályán. Az előadás elhangzott: Magyar Onkológusok Társaság, Fiatal Onkológusok Szekciójának VII. Konferenciája,
2018. szeptember 14.

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11. APPENDIX

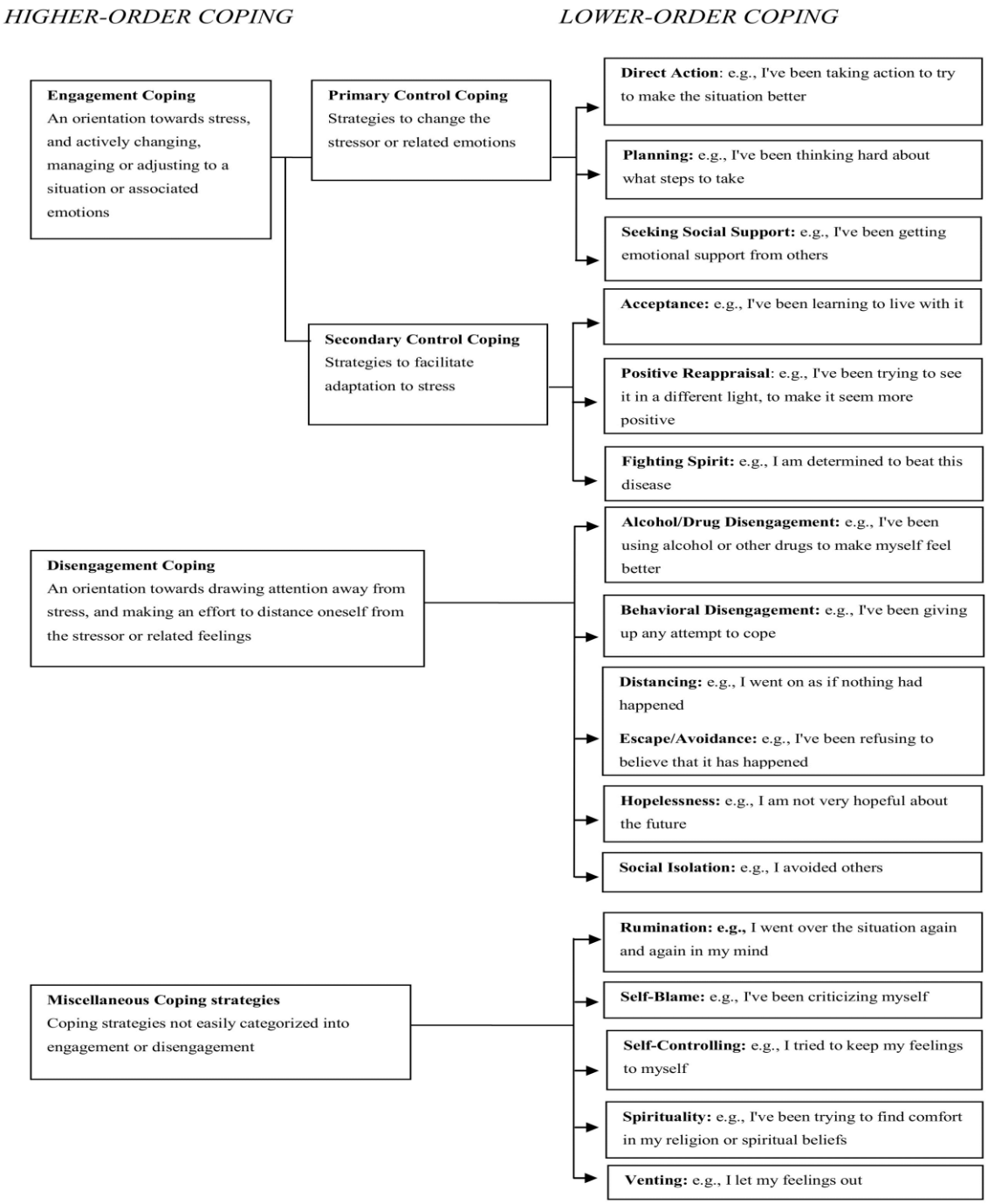

Figure 20. Kvillemo and Bränström's hierarchical model of coping with breast cancer. (Kvillemo & Bränström, 2014)

Table 26. Collected sociodemographic data

Data / Question	**Question type and answer options**
Date of completion	Open-ended question
Date of birth	Open-ended question
Education	Semi-closed question: Primary / Secondary / High / Other:____
Residence	Semi-closed question: Capital / City / Village / Other:_____
Marital status	Semi-closed question: Single / Coupled / Married / Divorced / Widowed / Other:_____
Number of people living in a household	Open-ended question
Number of children	Semi-closed question: 1 / 2 / 3 / 4 / Other:_____
Nature of work	Closed question: White-collar / Blue-collar
Employment	Closed question: Full-time / Part-time / Currently not working: maternity leave / retired / student / unemployed
Perceived financial situation	Closed question: Bad / Acceptable / Average / Above average / Good

Table 27. CAM-related data collected in the questionnaire

Data / Question	Question type and answer options
On what basis did you choose the natural remedy(s) used?	Closed question: commercial / the package leaflet of the product / based on information from the distributor / medical advice / scientific publications / based on the advice of a CAM provider / internet / patients suggested / relative suggested / healthcare provider suggested / advertised on the radio / advice from an online patient community
How did you learn about the natural medicine(s), dietary supplement(s), or CAM provider(s) you use?	Semi-closed question: Radio / television / newspaper / flyer / acquaintance, friend / relative / patient / attending physician / nurse / GP / other physician / other healthcare provider / internet / online patient community / CAM provider / Other:_____
What do you expect/What would you wish to achieve by using the natural medicine(s) or dietary supplement(s)?	Semi-closed question: Strengthening the immune system / Reducing side effects / Achieving tumor-free status / Prolonging life / Reducing suffering / Total recovery / Reducing pain / Improving mood / Other:_____
What do you use to measure / How do you perceive the effect of the product(s) or supplement(s) you use?	Open-ended question
How much money do you spend monthly on the product(s) or food supplement(s) you use?	Closed question: Not used / 1-10 thousand HUF [6] / 10-20 thousand HUF / 20-50 thousand HUF / 50-100 thousand HUF / more than 100 thousand HUF
Has your CAM provider ever recommended any diagnostic tests to you? (e.g., blood tests, X-rays, etc.)	Dichotomous question (Yes/No). If yes, please specify

[6] The Hungarian Forint (HUF) is the official currency of Hungary. The official exchange rate, according to the Magyar Nemzeti Bank (Hungarian National Bank) on 25 August 2023, is with the euro is HUF 383 = 1 euro and with the dollar HUF 355 = 1 USD. However, it should be noted that since this questionnaire was completed in 2019, the value of money and exchange rates have been significantly impacted by the serious inflation and economic crises. Source: https://www.mnb.hu/en/arfolyamok

4. Self Help Practices

Have you used any of the following self-help practices in the last 12 months?	Yes	No	Number of times you used this practice in the last 3 months?	Please indicate the *main* reason that applies to your *last* use of the self-help practice (Check only *one*). For an acute illness/condition, one that lasted less than one month	To treat a long-term health condition (one that lasted more than one month) or its symptoms	To improve well-being	Other (Please specify the other reason)	How helpful did you find this self-help practice? (Check only one) Very	Somewhat	Not at all	Don't know
Meditation	☐	☐	___	☐	☐	☐	_____	☐	☐	☐	☐
Yoga	☐	☐	___	☐	☐	☐	_____	☐	☐	☐	☐
Qigong	☐	☐	___	☐	☐	☐	_____	☐	☐	☐	☐
Tai Chi	☐	☐	___	☐	☐	☐	_____	☐	☐	☐	☐
Relaxation techniques	☐	☐	___	☐	☐	☐	_____	☐	☐	☐	☐
Visualization	☐	☐	___	☐	☐	☐	_____	☐	☐	☐	☐
Attended traditional healing ceremony	☐	☐	___	☐	☐	☐	_____	☐	☐	☐	☐
Praying for own health	☐	☐	___	☐	☐	☐	_____	☐	☐	☐	☐
Specified option: _____	☐	☐	___	☐	☐	☐	_____	☐	☐	☐	☐
Other (please specify): _____	☐	☐	___	☐	☐	☐	_____	☐	☐	☐	☐

Figure 21. Table 4 of the I-CAM-Q. (Quandt et al., 2009)

Table 28. Health-related data collected in the questionnaire

Data / Question	Question type and answer options
Comorbid somatic disease	Dichotomous question (Yes/No). If yes, please specify
Premorbid neurological/psychiatric disease	Dichotomous question (Yes/No). If yes, please specify
Family history of cancer	Dichotomous question (Yes/No). If yes, please specify which relative and which tumor
How long did it take for you to see a doctor after you first noticed symptoms of cancer?	Closed question: I had no symptoms; the disease was discovered during a screening test / a few hours / a few days / 1-2 weeks / 3-4 weeks / 2-3 months / 4-6 months / 1 year / 2-3 years / several years
How long did it take for you to see a doctor after you received the results of the screening test?	Closed question: a few hours / a few days / 1-2 weeks / 3-4 weeks / 2-3 months / 4-6 months / 1 year / 2-3 years / several years
Which specialist did you first consult after learning of your cancer diagnosis?	Closed question: physician / psychologist / a CAM provider, namely: Chiropractor / Homeopath / Acupuncturist / Fitotherapist / Kinesiologist / Massage Therapist / Astrologer / Spiritual Healer

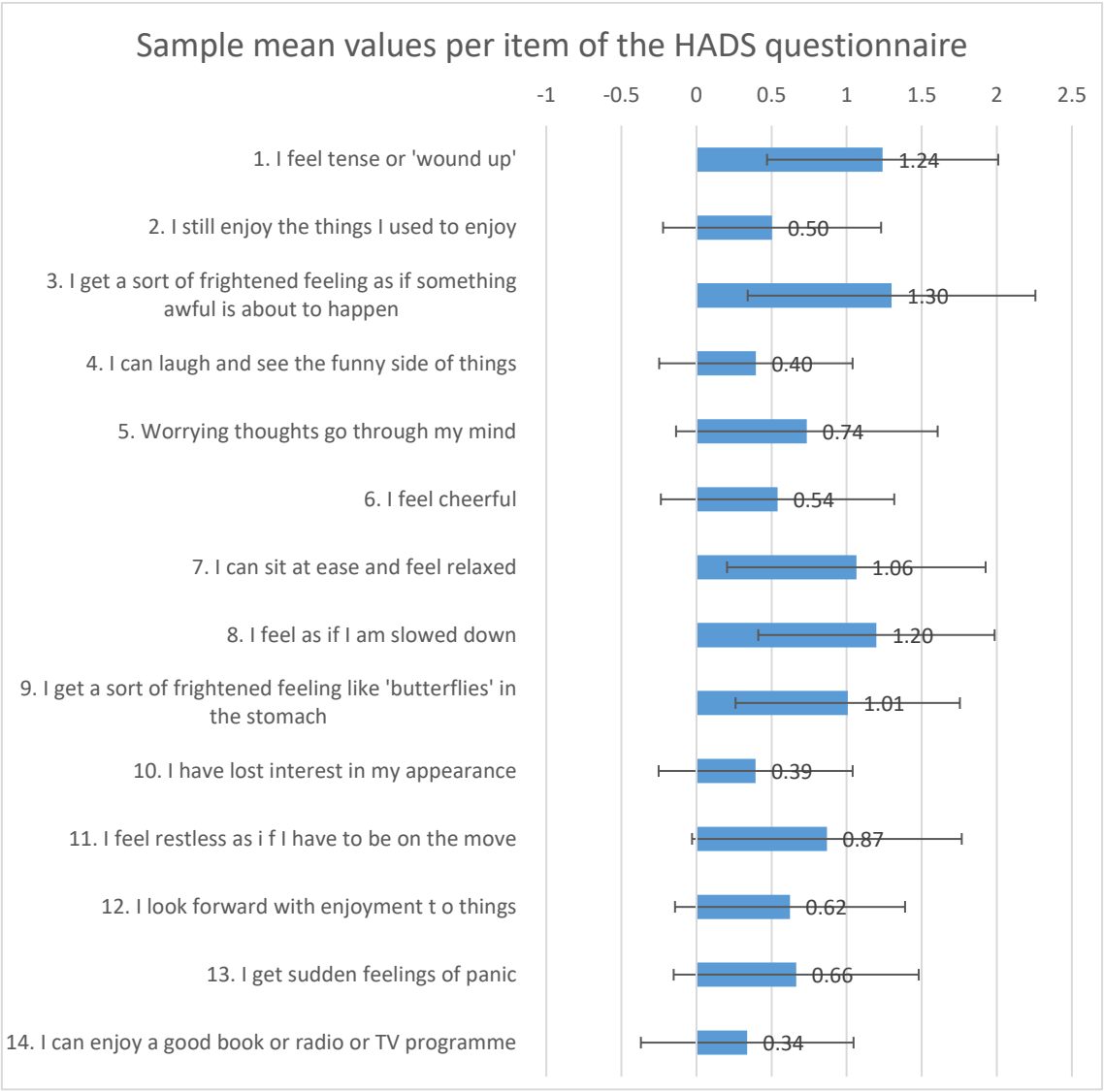

Figure 22. Mean and SD values per item of the HADS questionnaire

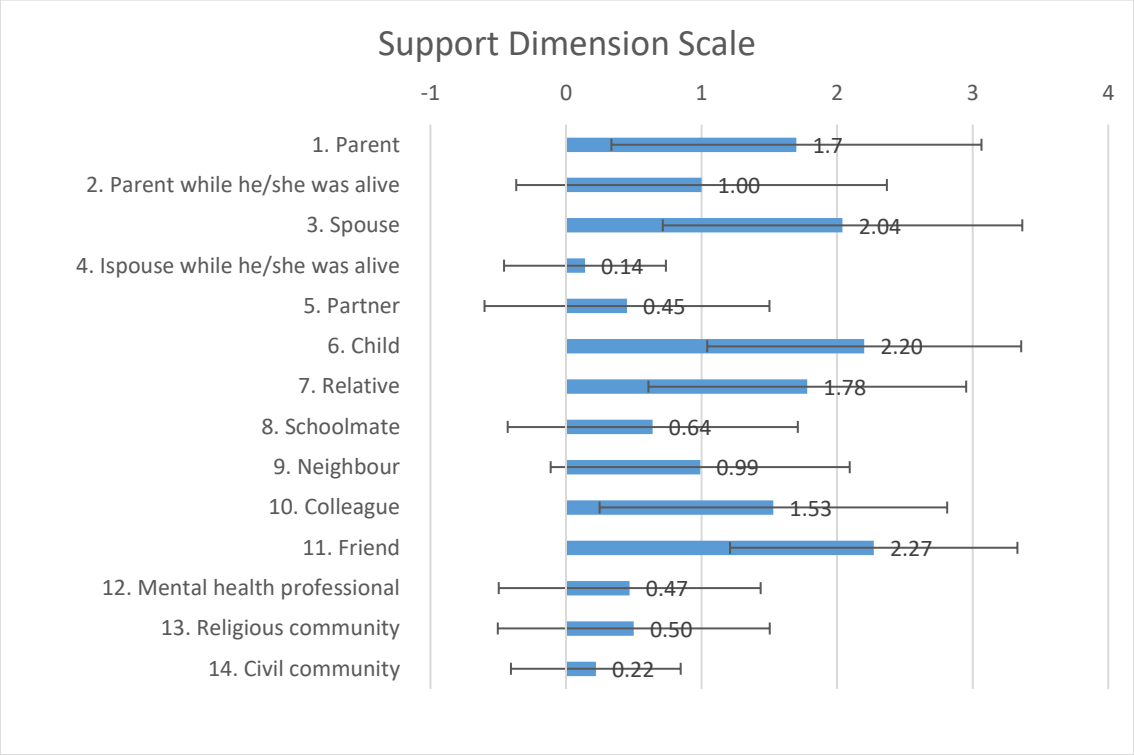

Figure 23. Mean and SD values per item of the SDS questionnaire

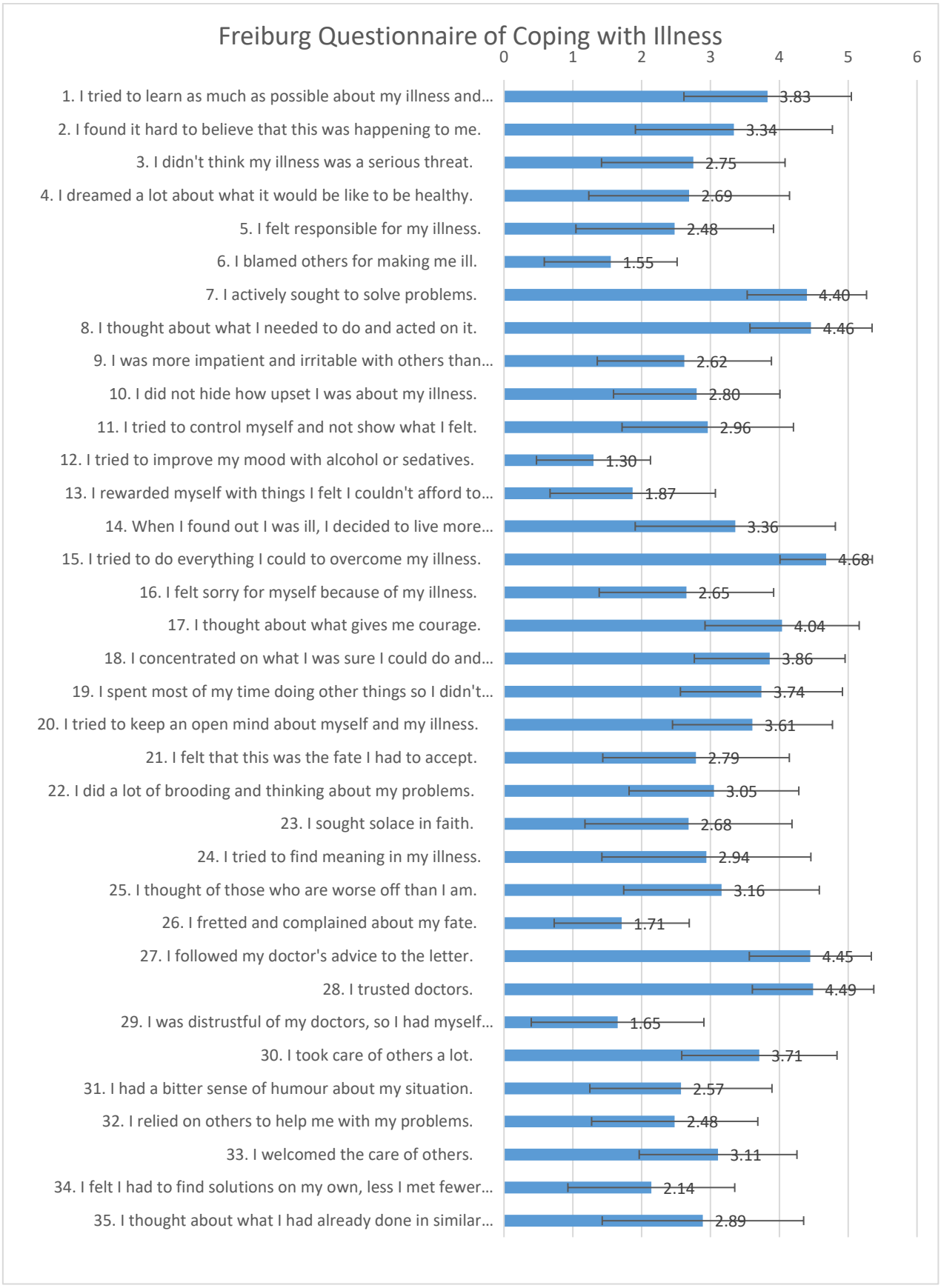

Figure 24. Mean and SD values per item of the FQCI

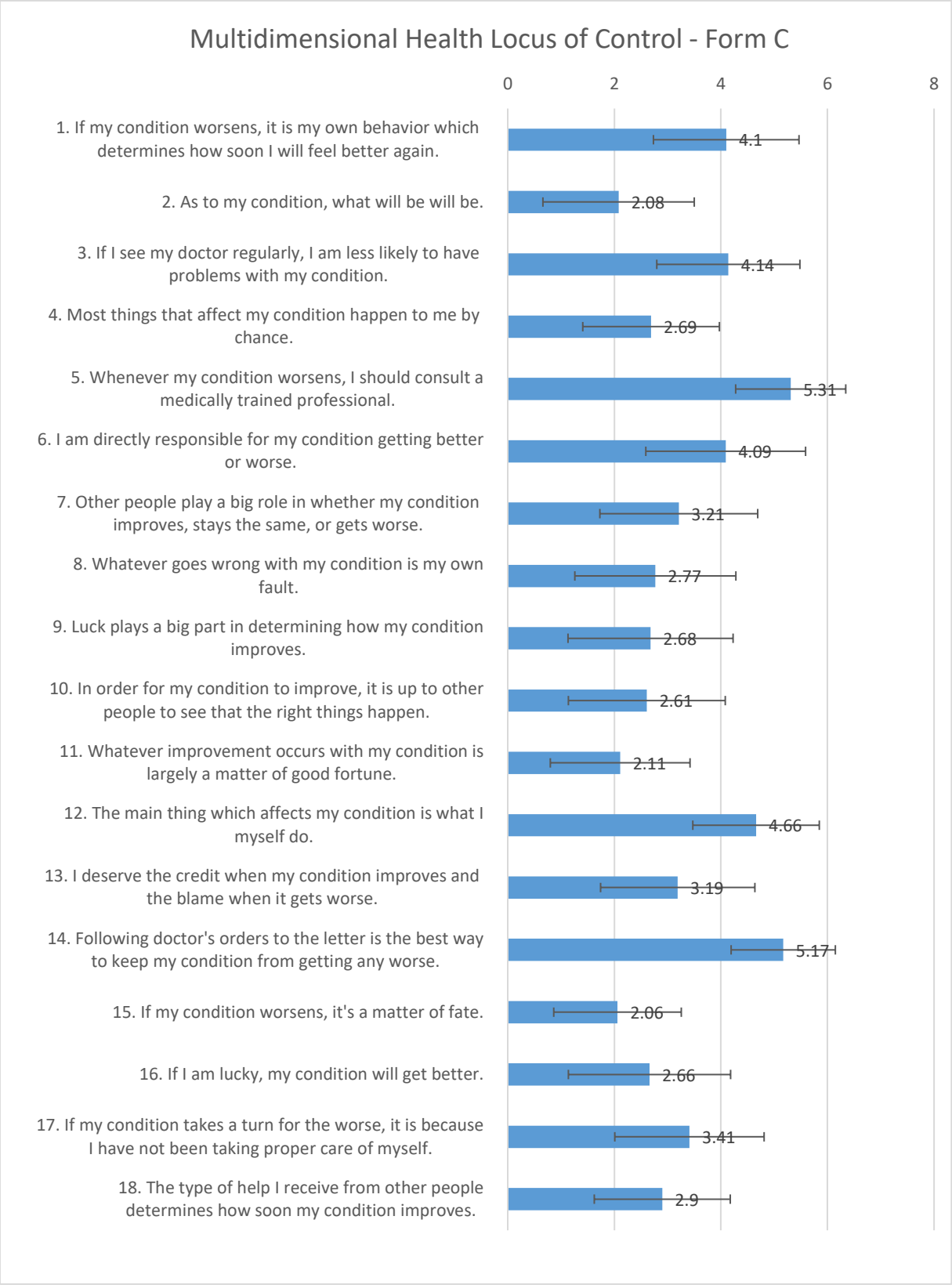

Figure 25. Mean and SD values per item of the MHLC-C

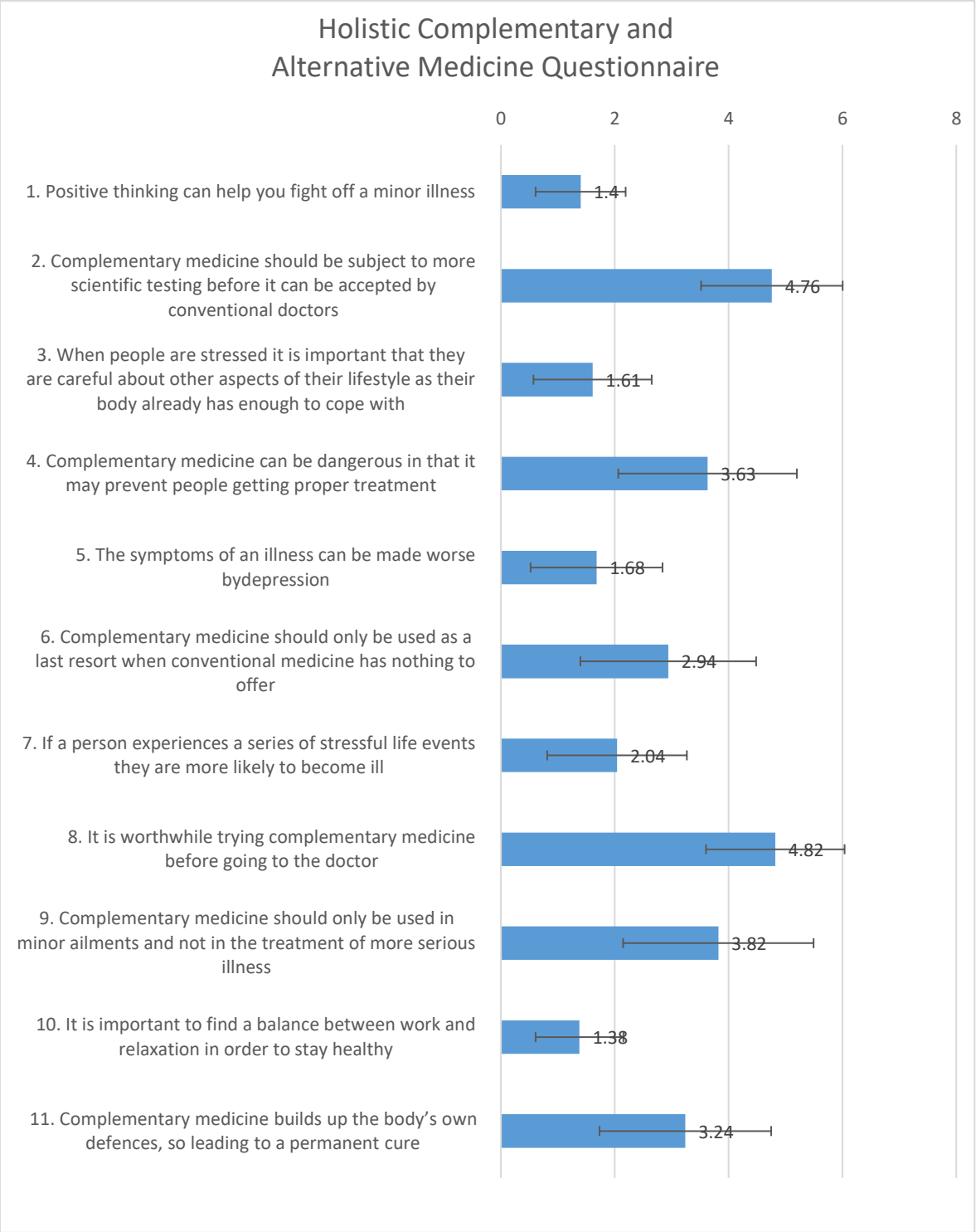

Figure 26. Mean and SD values per item of the HCAMQ

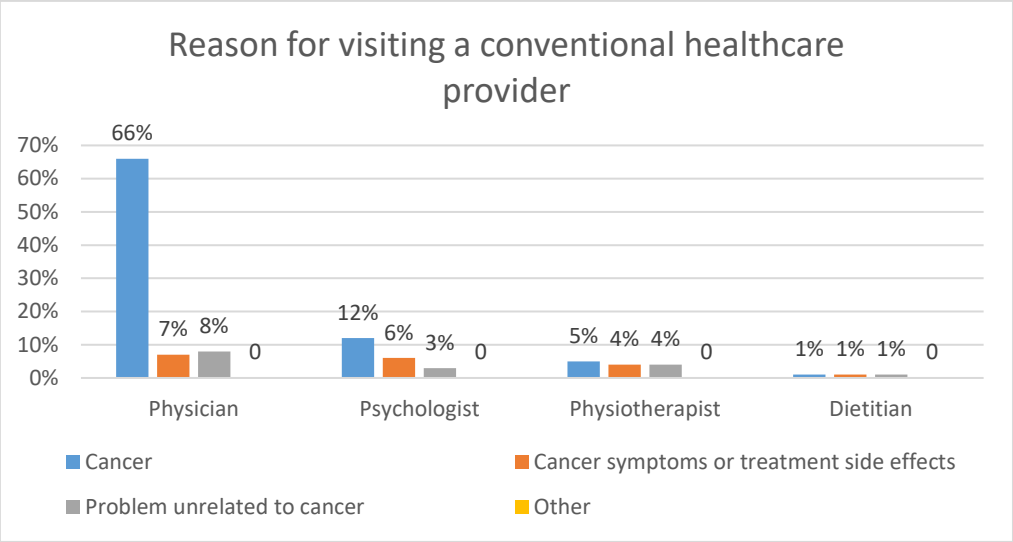

Figure 27. Reason for visiting a conventional healthcare provider in the last 12 months, by percentage of respondents (N=139)

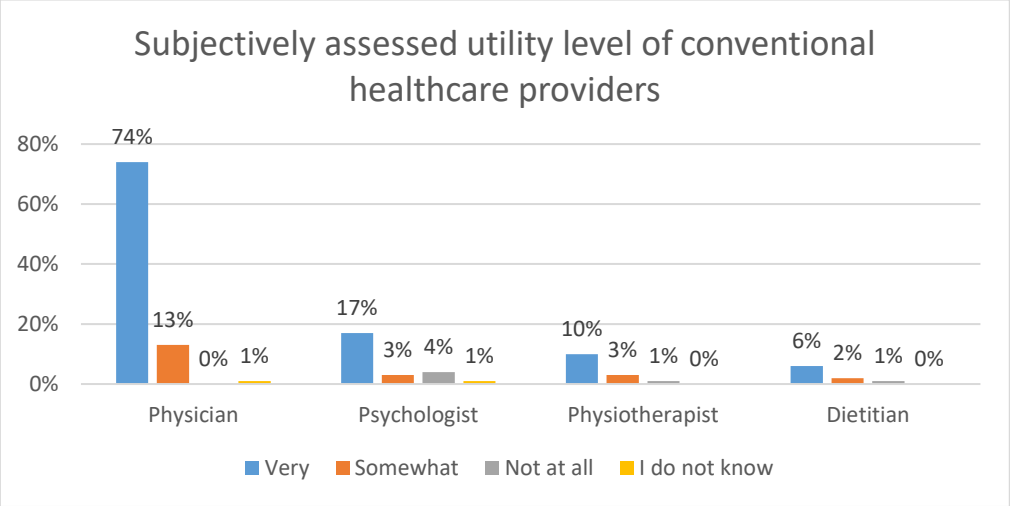

Figure 28. Subjectively rated the usefulness of conventional health care providers visited in the last 12 months among the sample (N=139)

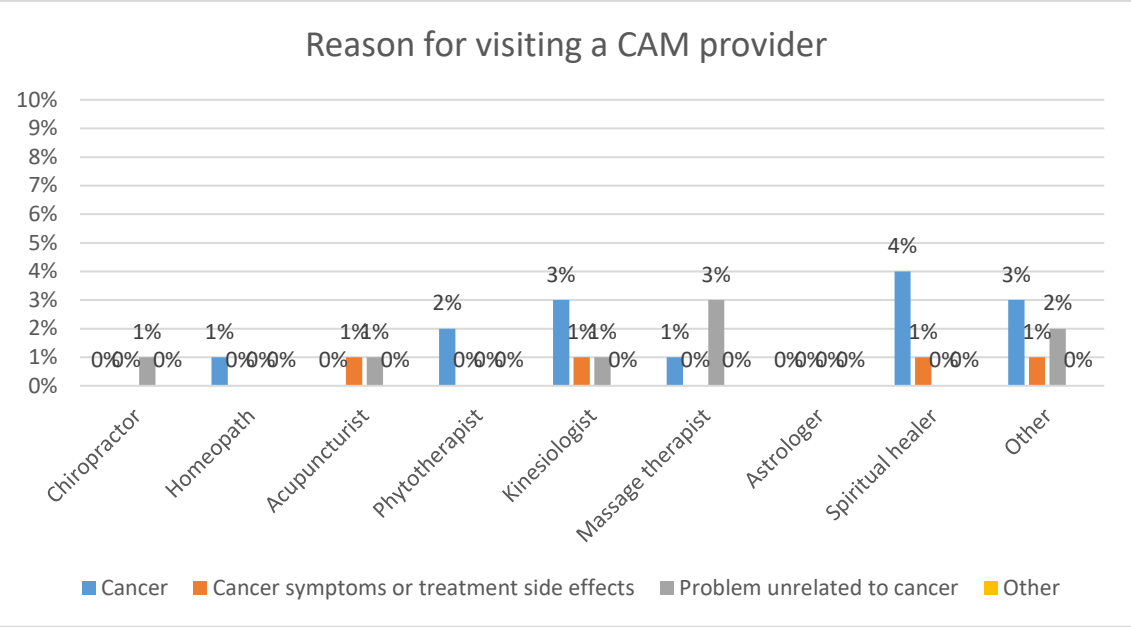

Figure 29. Reason for visiting a CAM provider in the last 12 months, by percentage of respondents (N=139)

Table 29. Herbs/Herbal preparations named in Table 3 of I-CAM-Q in the order of mention, in literal translation, without correction

Herb named first	Herb named second	Herb named third
Algae capsules	Antioxid.	annual wormwood
Aloe vera	Orpamalata	Algae tablets
Aloe vera gel	Avemar	Argan oil
Alveo	Wheatgrass	Biobran
Ayurvedic powders (Ayurvedic herbs)	Canabis	CBD(cannabis)
	Nettle	Echinacea + mandarin drops
Berry drops	Galaj	Flavonoids
Treasures of Bihar	Goji berry cream	Garlic
CBD oil	Mushrooms	Pomegranate
Lemongrass	Herbal teas	Dandelion tea
Lemongrass tea	Ginger capsules	Medicinal mushrooms
CPD oil	Linden tea	Herbafulvo
Nettle	Hesperidin	Marigold
Chickweed...	Sea Buckthorn	Milk Thistle
Rosehip	Immune boosters	Milk thistle capsules
Rosehip tea	Japanese green tea	Green barley powder
Diabess tea	Chamomile tea	Jaya tea
Dr. Chen Ganoderma capsules	Creams	Sage
Echinacia	Turmeric	
Mistletoe extract	Spearwort	
Black cohosh cream	Lavender	
Flavin 77 cyto	Mint-chalantha tea	
Herbal tea	Mint leaf	
Herbal teas	Omega 3	
Herbal teas (e.g. chamomile, walnut leaf)	Shepherd's pie	
	Propolis	
Ginger	Silegon	
Sea buckthorn juice		
Hyaluron		
Immune herbal tea		
Iscador		
Thyme		
Chamomile tea		
Cannabis oil		
Turmeric		
Legalon		
Liver meridian tea		
Liver protection tea		
Milk thistle		
Milk thistle capsules		
Royal jelly		
Neolife		
Olivia leaf extract		
St. John's wort		
Medical Lemongrass		
Butterbur		
Reiki Mushroom		
Spirulina algae		
Teas occasionally		
Frankincense		
Thunder tea		
Green wheatgrass juice		
Green tea		

Table 30. Vitamins/Minerals named in Table 3 of I-CAM-Q in the order of mention, in literal translation, without correction

Vitamins mentioned first	Vitamins mentioned second	Vitamins mentioned third
Vitamin "C"	Vitamin A3	Vitamin B12
1000 mg vitamin C	Algae	Béres drops
Vitamin A, B, C, D	Béres drops	Béres powder
Actival	Beta Glucan	BioGinkgo
Ascorbic acid	C	C
Vitamin B complex	C - 1000mg	Vitamin C
vitamin B3	Vitamin C + D	Ca + Mg
Béres drops	Vitamin C	Calcium
C	vitamin c	Catafl
Vitamin C - D	vitamin C	Zinc, selenium
C + D	Calcitrio	D
Vit C	Calcium	D vit
C vit, D vit	Zinc	Vitamin D
C vit.	D	Vitamin D
C-D-E	Vitamin D	E + multivitamins
Vitamin C	Vitamin D + Omega 3	Flavone dietary supplement.
vitamin C, D	Vitamin D	Glucosamine sulphate
vitamin C, vitamin D	D3	Immune booster
Vitamin C, D, E	E	Iodine
Vitamins C, D, K2	Vitamin E	Calcium
C, E	Vitamins E, B, D	Blue Iodine
C, D, E	E, B12	Liposomal C vit
Ca + Mg + Zn	Euüstcelloid	Magnesium
Citrocalcium	Forever lycium plus	Magnesium, potassium
Culevit	Gingo biloba	MgB6
D	Calcium	Q10
Vitamin D	Calcium	Selenium
vitamin d	Potassium	Iron, C
Vitamin D	Magna B SE	Vitamin E
D3 + K2	Magnesium	Vitinne plus
D3 2000 Eu	Mg. Iodine	
D3 K2	Multivitamin	
Vitamin E	Neolite preparations	
Flavin 7	Omega 3	
Flavone gel	Omega 3 oil	
Flavonoid	Selenium + Zinc	
Forever care a-beta	Tegreen	
GAL C	Trimester	
Gal plus vitamin	Iron	
Calcium	Vitamin C	
Calcium	Vitamin D	
L-ascorbic acid		
LifePak		
Mg citrate		
Mg tablets		
Multi E C		
Multivitamin		
Multivitamin nutrilite		
Neolife		
Q10, Mg, E		
Supradyn		
Iron		
Vasbor		
Vigantol drops		
Vitamin C		

Table 31. Homeopatic remedies named in Table 3 of I-CAM-Q in the order of mention, without correction

Homeopathic remedy mentioned first	Homeopathic remedy mentioned second	Homeopathic remedy mentioned third
Aruica	Conium C200	Aesculus hippocastanum ch30
Lachesis C200	Natrium sulfuricum ch15	Egyéb szerek
Schüssel salt 9	Schüssel salt 10	Schüssel salt 5, 19
Thuja occidentalis ch30	Staphysagria	

Table 32. The criteria used by participants to assess the effectiveness of CAM products

Indicators of the effectiveness of CAM products, as expressed by the participants
1. I had my first chemotherapy in August 2016, I had a 20 cm tumour, now I AM HEALTHY. Thank you.
2. In the amount of pain and regularity of digestion
3. The chemotherapy didn't hurt me too much.
4. In the better results of the control tests
5. I am noticing an improvement in my lab results
6. In my daily activities, in the healing process, in the medical outcome
7. The reduction in the number of cysts in my breasts
8. Activity, strength, well-being
9. General well-being
10. Improvement in general condition and mood.
11. Improvement in my fitness
12. I measure myself with a biophotonic scanner every month
13. I only take this product in tea form (for weight loss)
14. I only consumed green juices (for a short time), I did not notice any positive effects so I stopped - unfortunately.
15. I use vitamin D to prevent osteoporosis, no short term effects.
16. I am healthy
17. Health condition
18. I have not used it at all and am not a fan of natural medicine
19. Incidence of other diseases
20. I am not aware of any at the moment
21. Quality of life improvement
22. I am more resistant to diseases
23. Has the cold/throat pain (echinacia) gone away, does the tumour hurt (conium)
24. I feel energetic, well, complaint-free
25. Stronger immune system
26. I feel stronger, fitter. I don't crave salty, etc. foods.
27. I look after myself, meditate and try to help others.
28. Fitness, strength
29. Physical condition
30. Physical condition - fitness, mood, skin-digestive condition
31. Actually, my fitness has not deteriorated. I don't have any symptoms.
32. Good appetite, coped well with chemo
33. I feel well. I am confident in its effectiveness.
34. I feel better
35. Feel better

36. Feel better.
37. My blood sugar levels were better.
38. I feel better, more dynamic
39. I feel better.
40. I recovered quickly after chemotherapy. My blood count did not deteriorate. I did not catch any "minor" diseases (e.g. colds).
41. I am less tired
42. Less tired, no pain
43. I am less sick in general and the sore throat goes away
44. My mood has improved
45. Lab result
46. Laboratory tests (liver, blood count), reduction in side effects
47. Lab tests
48. I am also doing well mentally, blood work was fine during chemo
49. I don't know yet, I took it 1 week ago
50. I don't know yet, I'll get the results
51. Good blood count, fitness, well-being
52. Reduction in side effects, recovery from infection, labs
53. Measurable results (e.g. omega 6:3 ratio, tissue pO2) for improved wellbeing, improved performance (sport)
54. Increased vitality, better blood results
55. Improvement in daily quality of life, reduction in chemotherapy side effects
56. I don't get sick easily, but if I do, I recover faster (e.g. during viral illnesses)
57. I don't feel it, I just hope.
58. I do not measure
59. I don't measure it, I just believe it.
60. I don't get colds (flu, throat), prolactin hormone reduction by diet --> blood test
61. I rarely get sick
62. Subjective: love colourful, tasty fruit!
63. By increasing my performance and achieving a positive outlook
64. I have more strength.
65. Symptom relief
66. I feel stronger, healthier and more resilient
67. Blood count
68. Blood sampling
69. Protection against viruses
70. I tolerated the treatments relatively well

Table 33. Dichotomous variables of the point-biserial correlation

Variable name	Two categories	Variable name	Two categories
Education	0=Primary and Secondary 1=Higher	Comorbid somatic disease	0=No 1=Yes
Residence	0=Urban 1=Rural	Premorbid psychiatric, neurological disorder	0=No 1=Yes
Marital Status	0=Single 1=Coupled	Family history of cancer	0=No 1=Yes
Number of People Living in a Household	0=Living alone 1=Living with someone	Previous systemic treatment (chemotherapy, biological, endocrine therapy)	0=No 1=Yes
Number of Children	0=None 1=Have	Any Previous Oncological Treatment	0=No 1=yes
Type of Work	0=Blues collar 1=White collar	Currently on endocrine therapy	0=No 1=Yes
Employment	0=Fulltime 1=Part time	Type of Current Surgery	0=Cancer Surgery 1=Reconstruction
Psychological care received at the NIO	0=No 1=Yes		

Table 34. Results of point-biserical correlation to examine the relationship between distress and dichotomous sociodemographic and clinical factors

	Pearson Correlation	**HADS Anxiety**	**HADS Depression**
HADS Anxiety	**Pearson Correlation**	1	0,601**
	Sig. (2-tailed)		<0,001
	N	139	139
HADS Depression	**Pearson Correlation**	0,601**	1
	Sig. (2-tailed)	<0,001	
	N	139	139
Education	**Pearson Correlation**	-0,131	-0,097
	Sig. (2-tailed)	0,126	0,256
	N	139	139
Residence	**Pearson Correlation**	-0,066	0,047
	Sig. (2-tailed)	0,439	0,583
	N	139	139
Marital Status	**Pearson Correlation**	0,034	0,045
	Sig. (2-tailed)	0,69	0,599
	N	139	139
Number of People Living in a Household	**Pearson Correlation**	-0,032	-0,116
	Sig. (2-tailed)	0,711	0,174
	N	139	139
Number of Children	**Pearson Correlation**	-0,118	-0,153
	Sig. (2-tailed)	0,168	0,073
	N	139	139
Type of Work	**Pearson Correlation**	-0,019	-0,109
	Sig. (2-tailed)	0,826	0,202
	N	139	139
Employment	**Pearson Correlation**	0,006	0,018
	Sig. (2-tailed)	0,954	0,862
	N	93	93
Comorbid somatic disease	**Pearson Correlation**	-0,062	0,031
	Sig. (2-tailed)	0,471	0,717
	N	139	139
Premorbid psychiatric, neurological disorder	**Pearson Correlation**	,207*	,190*
	Sig. (2-tailed)	0,014	0,025
	N	139	139
Family history of cancer	**Pearson Correlation**	0,064	-0,108
	Sig. (2-tailed)	0,459	0,212
	N	136	136
Previous Systemyc Treatment	**Pearson Correlation**	-0,027	0,1
	Sig. (2-tailed)	0,751	0,24
	N	139	139
Any Type of Previous Treatment	**Pearson Correlation**	-0,109	0,054
	Sig. (2-tailed)	0,201	0,526
	N	139	139
Current Endocrine Therapy	**Pearson Correlation**	0,046	0,078
	Sig. (2-tailed)	0,591	0,36
	N	139	139
Type of Current Surgery	**Pearson Correlation**	-0,021	-0,116
	Sig. (2-tailed)	0,802	0,172

	N	139	139
Psychological Care	**Pearson Correlation**	0,232**	0,29**
	Sig. (2-tailed)	0,006	<0,001
	N	139	139

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Table 35. Multiple linear regression analysis predicting anxiety

Dependent Variable: HADS Anxiety	Model 1 (R^2= 0.022, ΔR^2= 0.022)			Model 2 (R^2= 0.071, ΔR^2= 0.049)			Model 3 (R^2= 0.154, ΔR^2= 0.083)***			Model 4 (R^2= 0.203, ΔR^2= 0.049)**			Model 5 (R^2= 0.350, ΔR^2= 0.147)***			Model 6 (R^2= 0.384, ΔR^2= 0.034)		
Independent variables	**B (β)**	**Std. Error**	**t**	**B (β)**	**Std. Error**	**t**	**B (β)**	**Std. Error**	**t**	**B (β)**	**Std. Error**	**t**	**B (β)**	**Std. Error**	**t**	**B (β)**	**Std. Error**	**t**
Comorbid somatic disease	-0,121 (-0,066)	0,161	0,751	-0,198 (-0,109)	0,163	-1,215	-0,272 (-0,149)	0,158	-1,723	**-0,317 (-0,174)***	**0,155**	**-2,054**	-0,244 (-0,134)	0,143	-1,706	-0,242 (-0,132)	0,142	-1,697
Stage	0,120 (0,066)	0,176	0,683	0,096 (0,052)	0,174	0,549	0,071 (0,039)	0,167	0,422	0,069 (0,038)	0,163	0,424	0,132 (0,072)	0,15	0,878	0,138 (0,075)	0,152	0,906
Prior oncological treatment	-0,286 (-0,146)	0,183	-1,562	-0,270 (-0,138)	0,181	-1,491	-0,338 (-0,173)	0,174	-1,941	-0,321 (-0,164)	0,17	-1,888	-0,273 (-0,14)	0,156	-1,756	**-0,321 (-0,164)***	**0,159**	**-2,024**
Number of people living in a household				-0,068 (-0,027)	0,22	-0,31	-0,079 (-0,031)	0,21	-0,378	0,055 (0,022)	0,211	0,263	0,009 (0,004)	0,196	0,047	-0,023 (-0,009)	0,194	-0,118
Premorbid psychiatric, neurological disorder				**0,41 (0,217)***	**0,162**	**2,531**	**0,388 (0,206)***	**0,155**	**2,5**	**0,364 (0,193)***	**0,152**	**2,401**	0,262 (0,139)	0,14	1,866	0,244 (0,129)	0,14	1,747
Residence				-0,076 (-0,032)	0,201	-0,378	-0,177 (-0,076)	0,194	-0,913	-0,154 (-0,066)	0,19	-0,815	-0,188 (-0,08)	0,173	-1,084	-0,238 (-0,102)	0,174	-1,37
Self-Rated Health							**-0,141 (-0,297)*** **	**0,039**	**-3,591**	**-0,126 (-0,265)*** **	**0,039**	**-3,25**	-0,067 (-0,142)	0,038	-1,788	-0,056 (-0,118)	0,037	-1,489
Support Dimension Scale										**-0,035 (-0,233)** **	**0,012**	**-2,819**	**-0,032 (-0,211)** **	**0,012**	**-2,751**	**-0,029 (-0,193)***	**0,012**	**-2,443**
FQCI Depressive and resigned coping													**0,474 (0,412)*** **	**0,09**	**5,289**	**0,482 (0,418)*** **	**0,089**	**5,435**
FQCI Self-affirmation and distraction													0,034 (0,033)	0,075	0,454	0,075 (0,073)	0,078	0,96
FQCI Searching for meaning and religious coping													-0,005 (-0,006)	0,066	-0,079	-0,013 (-0,015)	0,066	-0,196
MHLC Internal control																**-0,024 (-0,156)***	**0,011**	**-2,102**
MHLC Chance																0,016 (0,106)	0,013	1,244
MHLC Doctor and Others																0,001 (0,007)	0,016	0,09

* Significant at the 0.05 level

** Significant at the 0.01 level

*** Significant at the 0.001 level

Table 36. Multiple linear regression analysis predicting depression

Dependent Variable: HADS Depression	Model 1 (R^2= 0.005, ΔR^2= 0.005)			Model 2 (R^2= 0.058, ΔR^2= 0.053)			Model 3 (R^2= 0.170, ΔR^2= 0.112)***			Model 4 (R^2= 0.186, ΔR^2= 0.016)			Model 5 (R^2= 0.404, ΔR^2= 0.218)***			Model 6 (R^2= 0.456, ΔR^2= 0.051)*		
Independent variables	**B (β)**	**Std. Error**	**t**	**B (β)**	**Std. Error**	**t**	**B (β)**	**Std. Error**	**t**	**B (β)**	**Std. Error**	**t**	**B (β)**	**Std. Error**	**t**	**B (β)**	**Std. Error**	**t**
Comorbid somatic disease	0,092 (0,046)	0,176	0,521	-0,017 (-0,009)	0,177	-0,095	-0,108 (-0,055)	0,169	-0,643	-0,137 (-0,069)	0,169	-0,811	0,000 (0,000)	0,148	0,002	-0,009 (-0,004)	0,145	-0,059
Stage	0,059 (0,030)	0,191	0,309	0,022 (0,011)	0,189	0,115	-0,010 (-0,005)	0,179	-0,054	-0,011 (-0,005)	0,178	-0,06	0,038 (0,019)	0,155	0,245	-0,001 (-0,001)	0,154	-0,008
Prior oncological treatment	0,103 (0,049)	0,199	0,519	0,115 (0,054)	0,197	0,584	0,029 (0,014)	0,186	0,155	0,040 (0,019)	0,185	0,215	0,100 (0,047)	0,161	0,62	0,076 (0,036)	0,161	0,471
Number of people living in a household				-0,344 (-0,124)	0,239	-1,439	-0,358 (-0,13)	0,225	-1,59	-0,274 (-0,099)	0,23	-1,194	-0,212 (-0,077)	0,203	-1,043	-0,252 (-0,091)	0,197	-1,282
Premorbid psychiatric, neurological disorder				**0,397 (0,195)***	**0,176**	**2,254**	**0,369 (0,181)***	**0,166**	**2,225**	**0,354 (0,174)***	**0,165**	**2,144**	0,266 (0,131)	0,145	1,837	0,266 (0,131)	0,142	1,879
Residence				0,195 (0,077)	0,218	0,895	0,069 (0,027)	0,208	0,33	0,083 (0,033)	0,207	0,4	0,030 (0,012)	0,179	0,166	-0,010 (-0,004)	0,176	-0,058
Self-Rated Health							**-0,176 (-0,345)*** **	**0,042**	**-4,198**	**-0,167 (-0,326)*** **	**0,042**	**-3,955**	**-0,086 (-0,168)***	**0,039**	**-2,207**	-0,069 (-0,134)	0,038	-1,809
Support Dimension Scale										-0,022 (-0,134)	0,014	-1,603	-0,017 (-0,102)	0,012	-1,385	-0,017 (-0,106)	0,012	-1,429
FQCI Depressive and resigned coping													**0,463 (0,373)*** **	**0,093**	**4,996**	**0,479 (0,385)*** **	**0,09**	**5,327**
FQCI Self-affirmation and distraction													**-0,323 (-0,294)*** **	**0,078**	**-4,172**	**-0,289 (-0,263)*** **	**0,079**	**-3,667**
FQCI Searching for meaning and religious coping													0,017 (0,018)	0,068	0,255	0,024 (0,025)	0,067	0,353
MHLC Internal control																**-0,037 (-0,224)** **	**0,012**	**-3,225**
MHLC Chance																0,006 (0,040)	0,013	0,5
MHLC Doctor and Others																0,018 (0,082)	0,016	1,074

* Significant at the 0.05 level

** Significant at the 0.01 level

*** Significant at the 0.001 level

Table 37. Correlations of CAM services, products, and practices with sociodemographic indicators

		CAM provider	CAM received from a doctor	CAM products	CAM products (excluding vitamins)	Self-help practices
CAM provider	**Pearson Correlation**	1	,269**	,238**	,210*	,290**
	Sig. (2-tailed)		0,001	0,005	0,013	0,001
	N	139	139	139	139	139
CAM received from a doctor	**Pearson Correlation**	,269**	1	0,108	,255**	,298**
	Sig. (2-tailed)	0,001		0,207	0,002	0,000
	N	139	139	139	139	139
CAM products	**Pearson Correlation**	,238**	0,108	1	,589**	,282**
	Sig. (2-tailed)	0,005	0,207		0,000	0,001
	N	139	139	139	139	139
CAM products (excluding vitamins)	**Pearson Correlation**	,210*	,255**	,589**	1	,317**
	Sig. (2-tailed)	0,013	0,002	0,000		0,000
	N	139	139	139	139	139
Self-help practices	**Pearson Correlation**	,290**	,298**	,282**	,317**	1
	Sig. (2-tailed)	0,001	0,000	0,001	0,000	
	N	139	139	139	139	139
Age	**Pearson Correlation**	-,204*	-0,080	-0,104	-0,046	-,182*
	Sig. (2-tailed)	0,016	0,349	0,224	0,593	0,032
	N	139	139	139	139	139
Number of people living in a household	**Pearson Correlation**	0,062	0,035	,220*	0,047	,186*
	Sig. (2-tailed)	0,479	0,687	0,011	0,588	0,032
	N	133	133	133	133	133
Number of children	**Pearson Correlation**	-0,124	-0,036	0,075	0,014	0,066
	Sig. (2-tailed)	0,153	0,682	0,385	0,869	0,447
	N	135	135	135	135	135
Financial Situation Below Average/Averaga/Above Average	**Pearson Correlation**	0,106	0,067	0,067	0,030	0,101
	Sig. (2-tailed)	0,221	0,437	0,439	0,733	0,243
	N	136	136	136	136	136
Education: Primary&Secondary / High	**Pearson Correlation**	0,058	-0,021	,189*	0,095	,204*
	Sig. (2-tailed)	0,499	0,804	0,027	0,272	0,017
	N	136	136	136	136	136
Residence: Urban / Rural	**Pearson Correlation**	-0,062	-0,087	-0,055	0,101	0,106
	Sig. (2-tailed)	0,470	0,312	0,521	0,239	0,214
	N	138	138	138	138	138
Marital Status: Single / Coupled	**Pearson Correlation**	-0,018	0,032	0,099	0,009	0,054
	Sig. (2-tailed)	0,833	0,710	0,244	0,920	0,529

	N	139	139	139	139	139
Nature of Work: Bluecollar/ Whitecollar	**Pearson Correlation**	-0,013	-0,012	0,144	0,032	-0,081
	Sig. (2-tailed)	0,892	0,904	0,133	0,743	0,401
	N	110	110	110	110	110
Employment: Not employed/ Employed	**Pearson Correlation**	0,092	0,032	0,103	0,103	0,113
	Sig. (2-tailed)	0,288	0,715	0,235	0,237	0,193
	N	134	134	134	134	134

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 38. Correlation between self-help methods

		Meditation	Yoga	Cikung	Tai Chi	Relaxation	Visualization	Traditional healing	Praying	Other
Meditation	Pearson Correlation	1	,342**	,294**	0,172	,562**	,588**	,327**	,445**	,652**
	Sig. (2-tailed)		0,001	0,008	0,127	0,000	0,000	0,004	0,000	0,000
	N	105	89	81	80	89	87	75	93	50
Yoga	Pearson Correlation	,342**	1	0,210	0,217	,244*	0,055	0,068	0,114	,296*
	Sig. (2-tailed)	0,001		0,060	0,054	0,026	0,629	0,562	0,297	0,041
	N	89	92	81	80	83	81	75	85	48
Cikung	Pearson Correlation	,294**	0,210	1	,703**	0,081	0,112	,702**	0,209	-0,065
	Sig. (2-tailed)	0,008	0,060		0,000	0,477	0,327	0,000	0,062	0,673
	N	81	81	81	80	80	79	74	81	45
Tai Chi	Pearson Correlation	0,172	0,217	,703**	1	.c	.c	.c	0,121	.c
	Sig. (2-tailed)	0,127	0,054	0,000					0,284	
	N	80	80	80	80	79	78	74	80	45
Relaxation	Pearson Correlation	,562**	,244*	0,081	.c	1	,665**	0,185	,415**	,380**
	Sig. (2-tailed)	0,000	0,026	0,477			0,000	0,113	0,000	0,009
	N	89	83	80	79	89	85	75	88	46
Visualization	Pearson Correlation	,588**	0,055	0,112	.c	,665**	1	0,060	,484**	,540**
	Sig. (2-tailed)	0,000	0,629	0,327		0,000		0,610	0,000	0,000
	N	87	81	79	78	85	89	75	88	47
Traditional healing	Pearson Correlation	,327**	0,068	,702**	.c	0,185	0,060	1	,248*	0,227
	Sig. (2-tailed)	0,004	0,562	0,000		0,113	0,610		0,030	0,154
	N	75	75	74	74	75	75	76	76	41
Praying	Pearson Correlation	,445**	0,114	0,209	0,121	,415**	,484**	,248*	1	,395**
	Sig. (2-tailed)	0,000	0,297	0,062	0,284	0,000	0,000	0,030		0,006
	N	93	85	81	80	88	88	76	104	47
Other	Pearson Correlation	,652**	,296*	-0,065	.c	,380**	,540**	0,227	,395**	1
	Sig. (2-tailed)	0,000	0,041	0,673		0,009	0,000	0,154	0,006	
	N	50	48	45	45	46	47	41	47	53

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 39. Results of point-biserical correlation to examine the relationship between conventional healthcare provider use and CAM provider, product and self-help practice utilization

		Physician	Psychologist	Physiotherapis	Dietitian
Physician	**Pearson Correlation**	1	0,008	0,097	0,063
	Sig. (2-tailed)		0,937	0,321	0,539
	N	134	107	106	99
Psychologist	**Pearson Correlation**	0,008	1	0,099	,238*
	Sig. (2-tailed)	0,937		0,319	0,017
	N	107	108	103	100
Physiotherapist	**Pearson Correlation**	0,097	0,099	1	-0,071
	Sig. (2-tailed)	0,321	0,319		0,484
	N	106	103	107	99
Dietitian	**Pearson Correlation**	0,063	,238*	-0,071	1
	Sig. (2-tailed)	0,539	0,017	0,484	
	N	99	100	99	101
Chiropractor	**Pearson Correlation**	0,027	0,058	-0,071	-0,051
	Sig. (2-tailed)	0,798	0,576	0,495	0,626
	N	94	95	95	94
Homeopath	**Pearson Correlation**	-,262*	-0,033	0,158	-0,063
	Sig. (2-tailed)	0,010	0,753	0,124	0,549
	N	95	96	96	94
Acupuncturist	**Pearson Correlation**	0,033	,259*	,211*	0,188
	Sig. (2-tailed)	0,752	0,011	0,040	0,071
	N	94	95	95	93
Phytotherapist	**Pearson Correlation**	0,032	0,059	-0,070	-0,050
	Sig. (2-tailed)	0,755	0,568	0,498	0,628
	N	96	96	96	95
Kineziologist	**Pearson Correlation**	-0,115	-0,038	0,142	-0,003
	Sig. (2-tailed)	0,257	0,708	0,160	0,973
	N	99	99	99	97
Massage therapist	**Pearson Correlation**	0,058	-0,018	-0,055	-0,098
	Sig. (2-tailed)	0,576	0,861	0,593	0,348
	N	96	95	96	94
Other CAM provider	**Pearson Correlation**	0,500	-0,500	.b	.b
	Sig. (2-tailed)	0,667	0,667		
	N	3	3	3	3
Manipulative technique received from a doctor	**Pearson Correlation**	.b	-0,271	-0,150	-0,150
	Sig. (2-tailed)		0,328	0,593	0,593
	N	16	15	15	15
Homeopathy received from a doctor	**Pearson Correlation**	-0,227	,254*	0,027	0,025
	Sig. (2-tailed)	0,073	0,045	0,837	0,843

	N	63	63	62	63
Acupuncture received from a doctor	**Pearson Correlation**	0,027	0,224	0,198	0,190
	Sig. (2-tailed)	0,816	0,060	0,098	0,115
	N	75	71	71	70
Herbs received from a doctor	**Pearson Correlation**	0,060	0,141	-0,011	0,109
	Sig. (2-tailed)	0,605	0,238	0,926	0,364
	N	76	72	72	71
Spiritual healing received from a doctor	**Pearson Correlation**	0,039	0,068	-0,140	0,226
	Sig. (2-tailed)	0,738	0,574	0,241	0,058
	N	75	71	72	71
Other CAM method received from a doctor	**Pearson Correlation**	-,387**	0,050	-0,074	0,136
	Sig. (2-tailed)	0,006	0,744	0,622	0,379
	N	50	45	47	44
Herbs/Herbal products	**Pearson Correlation**	0,015	-0,017	0,169	-0,166
	Sig. (2-tailed)	0,866	0,861	0,081	0,098
	N	134	108	107	101
Vitamins/Minerals	**Pearson Correlation**	-0,015	0,123	0,081	-0,005
	Sig. (2-tailed)	0,866	0,204	0,409	0,959
	N	134	108	107	101
Homeopathic remedies	**Pearson Correlation**	0,023	0,043	0,168	0,167
	Sig. (2-tailed)	0,793	0,661	0,084	0,094
	N	134	108	107	101
Other CAM agent	**Pearson Correlation**	0,076	0,026	0,022	-0,113
	Sig. (2-tailed)	0,383	0,790	0,824	0,262
	N	134	108	107	101
Meditation	**Pearson Correlation**	-0,073	,339**	0,153	-0,002
	Sig. (2-tailed)	0,463	0,001	0,133	0,988
	N	103	97	98	92
Yoga	**Pearson Correlation**	0,123	-0,061	0,189	-0,074
	Sig. (2-tailed)	0,245	0,581	0,081	0,510
	N	91	85	86	81
Chikung	**Pearson Correlation**	0,039	0,079	0,044	,232*
	Sig. (2-tailed)	0,732	0,494	0,695	0,044
	N	80	78	80	76
Tai Chi	**Pearson Correlation**	0,022	.b	0,201	.b
	Sig. (2-tailed)	0,844		0,075	
	N	79	77	79	75
Relaxation	**Pearson Correlation**	0,007	,346**	-0,024	-0,060
	Sig. (2-tailed)	0,945	0,001	0,825	0,588
	N	88	86	86	83
Visualization	**Pearson Correlation**	-0,011	,373**	0,096	-0,046
	Sig. (2-tailed)	0,920	0,000	0,387	0,685

	N	88	86	84	82
Participation in traditional healing ceremony	**Pearson Correlation**	0,048	0,014	0,036	0,165
	Sig. (2-tailed)	0,680	0,904	0,761	0,168
	N	75	73	74	71
Praying	**Pearson Correlation**	0,090	,412**	,214*	0,092
	Sig. (2-tailed)	0,367	0,000	0,042	0,390
	N	102	91	91	89
Other self-help practice	**Pearson Correlation**	0,124	,308*	-0,158	-0,169
	Sig. (2-tailed)	0,375	0,029	0,285	0,257
	N	53	50	48	47
Σ Conventional healthcare providers	**Pearson Correlation**	,813**	0,125	0,096	0,064
	Sig. (2-tailed)	0,000	0,199	0,324	0,523
	N	134	108	107	101
Σ CAM providers	**Pearson Correlation**	-,190*	0,150	-0,096	0,040
	Sig. (2-tailed)	0,028	0,122	0,326	0,690
	N	134	108	107	101
Σ CAM from doctor	**Pearson Correlation**	-0,088	0,129	0,022	0,105
	Sig. (2-tailed)	0,310	0,182	0,820	0,297
	N	134	108	107	101
Σ CAM products	**Pearson Correlation**	0,028	0,067	0,126	-0,113
	Sig. (2-tailed)	0,751	0,488	0,194	0,259
	N	134	108	107	101
Σ CAM products excluding vitamins	**Pearson Correlation**	0,048	-0,039	0,115	-,248*
	Sig. (2-tailed)	0,580	0,690	0,239	0,012
	N	134	108	107	101
Σ Self-help practice	**Pearson Correlation**	-0,001	,339**	0,085	0,098
	Sig. (2-tailed)	0,993	0,000	0,387	0,331
	N	134	108	107	101
Σ Any form of CAM use	**Pearson Correlation**	-0,058	0,060	-0,005	0,092
	Sig. (2-tailed)	0,508	0,535	0,962	0,359
	N	134	108	107	101

Table 40. Results of point-biserial correlation to examine the relationship between conventional healthcare provider use, and CAM provider, product and self-help practice utilization

		Chiropractor	Homeopath	Acupuncturist	Phytotherapist	Kineziologist	Massage therapist	Other CAM provider
Physician	**Pearson Correlation**	0,027	-,262*	0,033	0,032	-0,115	0,058	0,500
	Sig. (2-tailed)	0,798	0,010	0,752	0,755	0,257	0,576	0,667
	N	94	95	94	96	99	96	3
Psychologist	**Pearson Correlation**	0,058	-0,033	,259*	0,059	-0,038	-0,018	-0,500
	Sig. (2-tailed)	0,576	0,753	0,011	0,568	0,708	0,861	0,667
	N	95	96	95	96	99	95	3
Physiotherapist	**Pearson Correlation**	-0,071	0,158	,211*	-0,070	0,142	-0,055	.b
	Sig. (2-tailed)	0,495	0,124	0,040	0,498	0,160	0,593	
	N	95	96	95	96	99	96	3
Dietitian	**Pearson Correlation**	-0,051	-0,063	0,188	-0,050	-0,003	-0,098	.b
	Sig. (2-tailed)	0,626	0,549	0,071	0,628	0,973	0,348	
	N	94	94	93	95	97	94	3
Chiropractor	**Pearson Correlation**	1	-0,026	-0,022	-0,015	-0,041	,239*	.b
	Sig. (2-tailed)		0,799	0,835	0,884	0,691	0,020	
	N	95	95	94	95	95	95	3
Homeopath	**Pearson Correlation**	-0,026	1	,262*	-0,019	,314**	-0,051	.b
	Sig. (2-tailed)	0,799		0,010	0,858	0,002	0,624	
	N	95	96	95	95	96	95	3
Acupuncturist	**Pearson Correlation**	-0,022	,262*	1	-0,015	0,162	-0,042	.b
	Sig. (2-tailed)	0,835	0,010		0,884	0,117	0,689	
	N	94	95	95	94	95	94	3
Phytotherapist	**Pearson Correlation**	-0,015	-0,019	-0,015	1	,220*	-0,029	.b
	Sig. (2-tailed)	0,884	0,858	0,884		0,031	0,780	
	N	95	95	94	97	96	95	3
Kineziologist	**Pearson Correlation**	-0,041	,314**	0,162	,220*	1	-0,080	.b
	Sig. (2-tailed)	0,691	0,002	0,117	0,031		0,444	
	N	95	96	95	96	100	95	3
Massage therapist	**Pearson Correlation**	,239*	-0,051	-0,042	-0,029	-0,080	1	.b
	Sig. (2-tailed)	0,020	0,624	0,689	0,780	0,444		
	N	95	95	94	95	95	97	3
Other CAM provider	**Pearson Correlation**	.b	.b	.b	.b	.b	.b	1
	Sig. (2-tailed)							
	N	3	3	3	3	3	3	3
Manipulative technique received from a doctor	**Pearson Correlation**	.b	-0,111	.b	.b	-0,208	-0,163	.b
	Sig. (2-tailed)		0,706			0,475	0,578	
	N	14	14	14	14	14	14	1

Homeopathy received from a doctor	**Pearson Correlation**	-0,062	-0,062	-0,062	.b	0,202	0,046	-1,000**
	Sig. (2-tailed)	0,640	0,640	0,640		0,118	0,727	
	N	60	60	60	60	61	60	2
Acupuncture received from a doctor	**Pearson Correlation**	-0,015	-0,021	-0,015	.b	-0,041	0,229	.b
	Sig. (2-tailed)	0,904	0,863	0,904		0,740	0,057	
	N	68	68	68	68	69	70	3
Herbs received from a doctor	**Pearson Correlation**	.b	.b	.b	.b	.b	.b	.b
	Sig. (2-tailed)							
	N	68	68	68	68	69	70	3
Spiritual healing received from a doctor	**Pearson Correlation**	-0,015	-0,022	1,000**	.b	-0,041	-0,041	.b
	Sig. (2-tailed)	0,903	0,862	0,000		0,738	0,740	
	N	67	67	67	67	68	69	3
Other CAM method received from a doctor	**Pearson Correlation**	-0,041	-0,059	-0,041	.b	0,028	0,206	.b
	Sig. (2-tailed)	0,738	0,633	0,738		0,818	0,087	
	N	68	68	68	68	69	70	3
Herbs/Herbal products	**Pearson Correlation**	-0,026	-0,037	-0,026	.b	-0,067	-0,071	.b
	Sig. (2-tailed)	0,832	0,762	0,832		0,588	0,562	
	N	68	68	68	68	68	70	3
Vitamins/Minerals	**Pearson Correlation**	.b	-0,069	.b	.b	,325*	-0,095	.b
	Sig. (2-tailed)		0,656			0,029	0,529	
	N	44	44	44	44	45	46	1
Homeopathic remedies	**Pearson Correlation**	-0,117	-0,058	-0,017	0,101	0,028	0,100	-0,500
	Sig. (2-tailed)	0,258	0,574	0,870	0,327	0,783	0,329	0,667
	N	95	96	95	97	100	97	3
Other CAM agent	**Pearson Correlation**	-0,058	0,028	0,120	-0,133	-0,003	0,060	.b
	Sig. (2-tailed)	0,576	0,786	0,248	0,194	0,979	0,558	
	N	95	96	95	97	100	97	3
Meditation	**Pearson Correlation**	-0,022	,335**	-0,026	-0,026	0,167	0,148	.b
	Sig. (2-tailed)	0,836	0,001	0,799	0,801	0,097	0,148	
	N	95	96	95	97	100	97	3
Yoga	**Pearson Correlation**	0,104	0,021	-0,093	-0,091	0,101	0,013	.b
	Sig. (2-tailed)	0,315	0,836	0,369	0,375	0,317	0,902	
	N	95	96	95	97	100	97	3
Chikung	**Pearson Correlation**	0,036	0,047	,231*	0,033	,364**	0,181	.b
	Sig. (2-tailed)	0,742	0,659	0,030	0,758	0,000	0,087	
	N	88	89	88	89	93	90	2
Tai Chi	**Pearson Correlation**	0,098	0,038	0,098	-0,064	,228*	,219*	.b
	Sig. (2-tailed)	0,391	0,738	0,391	0,577	0,040	0,049	
	N	79	80	79	79	82	81	2
Relaxation	**Pearson Correlation**	-0,014	-0,023	-0,019	-0,014	-0,034	,288*	.b
	Sig. (2-tailed)	0,908	0,841	0,870	0,908	0,772	0,012	
	N	75	76	75	75	76	76	2

Visualization	**Pearson Correlation**	.b	.b	.b	.b	.b	,435**	.b
	Sig. (2-tailed)						0,000	
	N	75	76	75	75	76	76	2
Participation in traditional healing ceremony	**Pearson Correlation**	-0,076	0,005	0,060	0,061	0,112	0,108	.b
	Sig. (2-tailed)	0,504	0,963	0,598	0,588	0,312	0,335	
	N	80	81	80	81	83	81	2
Praying	**Pearson Correlation**	-0,065	0,131	,276*	0,091	,226*	0,095	.b
	Sig. (2-tailed)	0,574	0,249	0,014	0,423	0,043	0,406	
	N	78	79	78	79	81	78	2
Other self-help practice	**Pearson Correlation**	.b	-0,036	-0,029	-0,021	,401**	-0,042	.b
	Sig. (2-tailed)		0,767	0,809	0,865	0,000	0,729	
	N	70	71	70	70	72	70	2
Σ Conventional healthcare providers	**Pearson Correlation**	-0,112	0,103	0,183	0,150	0,191	0,029	.b
	Sig. (2-tailed)	0,309	0,347	0,095	0,171	0,075	0,793	
	N	84	85	84	85	88	86	2
Σ CAM providers	**Pearson Correlation**	-0,080	0,064	.b	.b	,301*	0,268	.b
	Sig. (2-tailed)	0,591	0,666			0,038	0,066	
	N	48	48	47	48	48	48	0
Σ CAM from doctor	**Pearson Correlation**	0,026	-,262**	0,033	0,032	-0,115	0,057	.b
	Sig. (2-tailed)	0,799	0,010	0,754	0,756	0,253	0,578	
	N	95	96	95	97	100	97	3
Σ CAM products	**Pearson Correlation**	0,176	,247*	,212*	,209*	,417**	,374**	-1,000**
	Sig. (2-tailed)	0,088	0,015	0,039	0,040	0,000	0,000	0,000
	N	95	96	95	97	100	97	3
Σ CAM products excluding vitamins	**Pearson Correlation**	-0,058	-0,083	0,103	-0,070	0,028	0,172	.b
	Sig. (2-tailed)	0,574	0,424	0,319	0,494	0,779	0,092	
	N	95	96	95	97	100	97	3
Σ Self-help practice	**Pearson Correlation**	0,073	-0,027	0,090	-0,056	-0,036	-0,021	.b
	Sig. (2-tailed)	0,480	0,792	0,384	0,585	0,720	0,836	
	N	95	96	95	97	100	97	3
Σ Any form of CAM use	**Pearson Correlation**	-0,005	-0,004	-0,062	0,054	0,054	0,090	-0,500
	Sig. (2-tailed)	0,964	0,966	0,550	0,599	0,592	0,379	0,667
	N	95	96	95	97	100	97	3

Table 41. Results of point-biserial correlation to examine the relationship between CAM method received from a doctor and conventional healthcare provider use and CAM provider, product and self-help practice utilization

		Manipulative technique received from a doctor	Homeopathy received from a doctor	Acupuncture received from a doctor	Herbs received from a doctor	Spiritual healing received from a doctor	Other CAM method received from a doctor
Physician	**Pearson Correlation**	0,032	.b	0,027	0,060	0,039	-,387**
	Sig. (2-tailed)	0,778		0,816	0,605	0,738	0,006
	N	78	75	75	76	75	50
Psychologist	**Pearson Correlation**	0,045	.b	0,224	0,141	0,068	0,050
	Sig. (2-tailed)	0,704		0,060	0,238	0,574	0,744
	N	73	71	71	72	71	45
Physiotherapist	**Pearson Correlation**	0,199	.b	0,198	-0,011	-0,140	-0,074
	Sig. (2-tailed)	0,092		0,098	0,926	0,241	0,622
	N	73	72	71	72	72	47
Dietitian	**Pearson Correlation**	,314**	,314**	0,190	0,109	0,226	0,136
	Sig. (2-tailed)	0,007	0,008	0,115	0,364	0,058	0,379
	N	72	71	70	71	71	44
Chiropractor	**Pearson Correlation**	-0,015	.b	-0,015	-0,041	-0,026	.b
	Sig. (2-tailed)	0,904		0,903	0,738	0,832	
	N	68	68	67	68	68	44
Homeopath	**Pearson Correlation**	-0,021	.b	-0,022	-0,059	-0,037	-0,069
	Sig. (2-tailed)	0,863		0,862	0,633	0,762	0,656
	N	68	68	67	68	68	44
Acupuncturist	**Pearson Correlation**	-0,015	.b	1,000**	-0,041	-0,026	.b
	Sig. (2-tailed)	0,904		0,000	0,738	0,832	
	N	68	68	67	68	68	44
Phytotherapist	**Pearson Correlation**	.b	.b	.b	.b	.b	.b
	Sig. (2-tailed)						
	N	68	68	67	68	68	44
Kineziologist	**Pearson Correlation**	-0,041	.b	-0,041	0,028	-0,067	,325*
	Sig. (2-tailed)	0,740		0,738	0,818	0,588	0,029
	N	69	69	68	69	68	45
Massage therapist	**Pearson Correlation**	0,229	.b	-0,041	0,206	-0,071	-0,095
	Sig. (2-tailed)	0,057		0,740	0,087	0,562	0,529
	N	70	70	69	70	70	46
Other CAM provider	**Pearson Correlation**	.b	.b	.b	.b	.b	.b
	Sig. (2-tailed)						
	N	3	3	3	3	3	1
Manipulative technique	**Pearson Correlation**	.b	.b	.b	-0,100	-0,135	.b

received from a doctor	**Sig. (2-tailed)**				0,770	0,676	
	N	13	11	11	11	12	8
Homeopathy received from a doctor	**Pearson Correlation**	.b	.b	.b	,543**	0,263	,816**
	Sig. (2-tailed)				0,000	0,081	0,000
	N	46	46	45	47	45	35
Acupuncture received from a doctor	**Pearson Correlation**	1	,570**	,557**	,258*	0,219	-0,070
	Sig. (2-tailed)		0,000	0,000	0,024	0,058	0,635
	N	79	76	76	77	76	49
Herbs received from a doctor	**Pearson Correlation**	,570**	1	,702**	,315**	,490**	.b
	Sig. (2-tailed)	0,000		0,000	0,006	0,000	
	N	76	76	75	76	75	49
Spiritual healing received from a doctor	**Pearson Correlation**	,557**	,702**	1	,321**	,329**	.b
	Sig. (2-tailed)	0,000	0,000		0,005	0,004	
	N	76	75	76	76	74	48
Other CAM method received from a doctor	**Pearson Correlation**	,258*	,315**	,321**	1	,302**	,572**
	Sig. (2-tailed)	0,024	0,006	0,005		0,008	0,000
	N	77	76	76	78	75	50
Herbs/Herbal products	**Pearson Correlation**	0,219	,490**	,329**	,302**	1	,314*
	Sig. (2-tailed)	0,058	0,000	0,004	0,008		0,030
	N	76	75	74	75	76	48
Vitamins/Minerals	**Pearson Correlation**	-0,070	.b	.b	,572**	,314*	1
	Sig. (2-tailed)	0,635			0,000	0,030	
	N	49	49	48	50	48	51
Homeopathic remedies	**Pearson Correlation**	-0,084	-0,098	-0,036	,324**	0,096	,343*
	Sig. (2-tailed)	0,461	0,397	0,757	0,004	0,409	0,014
	N	79	76	76	78	76	51
Other CAM agent	**Pearson Correlation**	-,243*	-0,200	-0,186	0,069	-0,203	0,245
	Sig. (2-tailed)	0,031	0,083	0,108	0,547	0,079	0,083
	N	79	76	76	78	76	51
Meditation	**Pearson Correlation**	-0,046	-0,023	-0,041	0,111	-0,054	0,142
	Sig. (2-tailed)	0,688	0,841	0,724	0,335	0,644	0,319
	N	79	76	76	78	76	51
Yoga	**Pearson Correlation**	0,020	-0,062	-0,109	0,054	-0,007	-0,053
	Sig. (2-tailed)	0,864	0,595	0,349	0,640	0,953	0,709
	N	79	76	76	78	76	51
Chikung	**Pearson Correlation**	0,219	.b	0,186	,260*	0,142	,387**
	Sig. (2-tailed)	0,066		0,126	0,028	0,243	0,008
	N	71	69	69	71	69	46
Tai Chi	**Pearson Correlation**	,258*	.b	-0,083	0,181	0,010	-0,057
	Sig. (2-tailed)	0,038		0,516	0,153	0,938	0,718
	N	65	64	63	64	64	42
Relaxation	**Pearson Correlation**	-0,030	.b	-0,025	-0,051	,298*	-0,069

	Sig. (2-tailed)	0,819		0,852	0,701	0,022	0,681
	N	59	58	58	58	59	38
Visualization	**Pearson Correlation**	-0,018	.b	-0,018	-0,036	-0,025	-0,048
	Sig. (2-tailed)	0,896		0,896	0,788	0,852	0,774
	N	58	58	58	58	58	38
Participation in traditional healing ceremony	**Pearson Correlation**	0,128	.b	0,051	0,195	0,140	,313*
	Sig. (2-tailed)	0,311		0,693	0,122	0,274	0,046
	N	65	63	63	64	63	41
Praying	**Pearson Correlation**	0,071	.b	,275*	0,162	0,185	,409**
	Sig. (2-tailed)	0,580		0,031	0,210	0,153	0,010
	N	63	61	62	62	61	39
Other self-help practice	**Pearson Correlation**	-0,037	.b	-0,033	0,203	-0,038	0,298
	Sig. (2-tailed)	0,784		0,813	0,138	0,782	0,082
	N	56	55	55	55	54	35
Σ Conventional healthcare providers	**Pearson Correlation**	0,069	0,101	0,174	0,140	0,207	0,179
	Sig. (2-tailed)	0,572	0,415	0,155	0,256	0,093	0,244
	N	70	67	68	68	67	44
Σ CAM providers	**Pearson Correlation**	-0,105	.b	.b	0,110	0,262	0,189
	Sig. (2-tailed)	0,543			0,525	0,123	0,345
	N	36	36	35	36	36	27
Σ CAM from doctor	**Pearson Correlation**	0,026	0,013	0,023	-0,167	0,031	-,507**
	Sig. (2-tailed)	0,819	0,909	0,841	0,143	0,793	0,000
	N	79	76	76	78	76	51
Σ CAM products	**Pearson Correlation**	-0,090	-0,101	-0,041	0,164	0,196	,343*
	Sig. (2-tailed)	0,432	0,385	0,723	0,152	0,090	0,014
	N	79	76	76	78	76	51
Σ CAM products excluding vitamins	**Pearson Correlation**	,425**	0,224	,378**	,740**	,514**	,761**
	Sig. (2-tailed)	0,000	0,052	0,001	0,000	0,000	0,000
	N	79	76	76	78	76	51
Σ Self-help practice	**Pearson Correlation**	-,224*	-,281*	-,283*	-0,031	-0,193	0,159
	Sig. (2-tailed)	0,047	0,014	0,013	0,785	0,096	0,265
	N	79	76	76	78	76	51
Σ Any form of CAM use	**Pearson Correlation**	-0,021	-0,125	-0,084	,227*	0,032	0,232
	Sig. (2-tailed)	0,857	0,282	0,471	0,045	0,782	0,101
	N	79	76	76	78	76	51

Table 42. Results of point-biserial correlation to examine the relationship between CAM product use and conventional healthcare provider, CAM provider, product and self-help practice utilization

	Pearson Correlation	Herbs/ Herbal products	Vitamins/ Minerals	Homeopathic remedies	Other CAM product
Physician	**Pearson Correlation**	0,015	-0,015	0,023	0,076
	Sig. (2-tailed)	0,866	0,866	0,793	0,383
	N	134	134	134	134
Psychologist	**Pearson Correlation**	-0,017	0,123	0,043	0,026
	Sig. (2-tailed)	0,861	0,204	0,661	0,790
	N	108	108	108	108
Physiotherapist	**Pearson Correlation**	0,169	0,081	0,168	0,022
	Sig. (2-tailed)	0,081	0,409	0,084	0,824
	N	107	107	107	107
Dietitian	**Pearson Correlation**	-0,166	-0,005	0,167	-0,113
	Sig. (2-tailed)	0,098	0,959	0,094	0,262
	N	101	101	101	101
Chiropractor	**Pearson Correlation**	-0,117	-0,058	-0,022	0,104
	Sig. (2-tailed)	0,258	0,576	0,836	0,315
	N	95	95	95	95
Homeopath	**Pearson Correlation**	-0,058	0,028	,335**	0,021
	Sig. (2-tailed)	0,574	0,786	0,001	0,836
	N	96	96	96	96
Acupuncturist	**Pearson Correlation**	-0,017	0,120	-0,026	-0,093
	Sig. (2-tailed)	0,870	0,248	0,799	0,369
	N	95	95	95	95
Phytotherapist	**Pearson Correlation**	0,101	-0,133	-0,026	-0,091
	Sig. (2-tailed)	0,327	0,194	0,801	0,375
	N	97	97	97	97
Kineziologist	**Pearson Correlation**	0,028	-0,003	0,167	0,101
	Sig. (2-tailed)	0,783	0,979	0,097	0,317
	N	100	100	100	100
Massage therapist	**Pearson Correlation**	0,100	0,060	0,148	0,013
	Sig. (2-tailed)	0,329	0,558	0,148	0,902
	N	97	97	97	97
Other CAM provider	**Pearson Correlation**	-0,500	.b	.b	.b
	Sig. (2-tailed)	0,667			
	N	3	3	3	3
Manipulative technique received from a doctor	**Pearson Correlation**	-0,349	0,084	-0,113	0,253
	Sig. (2-tailed)	0,185	0,756	0,677	0,345
	N	16	16	16	16
Homeopathy received from a doctor	**Pearson Correlation**	0,190	,327**	0,219	0,171
	Sig. (2-tailed)	0,130	0,008	0,080	0,173
	N	65	65	65	65
Acupuncture received from a doctor	**Pearson Correlation**	-0,084	-,243*	-0,046	0,020
	Sig. (2-tailed)	0,461	0,031	0,688	0,864
	N	79	79	79	79
Herbs received from a doctor	**Pearson Correlation**	-0,098	-0,200	-0,023	-0,062
	Sig. (2-tailed)	0,397	0,083	0,841	0,595
	N	76	76	76	76
Spiritual healing received from a doctor	**Pearson Correlation**	-0,036	-0,186	-0,041	-0,109
	Sig. (2-tailed)	0,757	0,108	0,724	0,349
	N	76	76	76	76
	Pearson Correlation	,324**	0,069	0,111	0,054

Other CAM method received from a doctor	**Sig. (2-tailed)**	0,004	0,547	0,335	0,640
	N	78	78	78	78
Herbs/Herbal products	**Pearson Correlation**	0,096	-0,203	-0,054	-0,007
	Sig. (2-tailed)	0,409	0,079	0,644	0,953
	N	76	76	76	76
Vitamins/Minerals	**Pearson Correlation**	,343*	0,245	0,142	-0,053
	Sig. (2-tailed)	0,014	0,083	0,319	0,709
	N	51	51	51	51
Homeopathic remedies	**Pearson Correlation**	1	,342**	,192*	0,057
	Sig. (2-tailed)		0,000	0,023	0,509
	N	139	139	139	139
Other CAM agent	**Pearson Correlation**	,342**	1	0,118	0,143
	Sig. (2-tailed)	0,000		0,165	0,094
	N	139	139	139	139
Meditation	**Pearson Correlation**	,192*	0,118	1	-0,075
	Sig. (2-tailed)	0,023	0,165		0,383
	N	139	139	139	139
Yoga	**Pearson Correlation**	0,057	0,143	-0,075	1
	Sig. (2-tailed)	0,509	0,094	0,383	
	N	139	139	139	139
Chikung	**Pearson Correlation**	,344**	0,186	0,187	0,115
	Sig. (2-tailed)	0,000	0,058	0,056	0,243
	N	105	105	105	105
Tai Chi	**Pearson Correlation**	,228*	-,212*	0,158	0,167
	Sig. (2-tailed)	0,029	0,042	0,131	0,112
	N	92	92	92	92
Relaxation	**Pearson Correlation**	0,109	-0,005	,570**	-0,093
	Sig. (2-tailed)	0,333	0,963	0,000	0,406
	N	81	81	81	81
Visualization	**Pearson Correlation**	0,141	0,076	1,000**	-0,054
	Sig. (2-tailed)	0,211	0,504	0,000	0,634
	N	80	80	80	80
Participation in traditional healing ceremony	**Pearson Correlation**	,232*	0,140	0,146	-0,055
	Sig. (2-tailed)	0,029	0,191	0,173	0,607
	N	89	89	89	89
Praying	**Pearson Correlation**	,253*	,276**	,230*	0,033
	Sig. (2-tailed)	0,017	0,009	0,030	0,760
	N	89	89	89	89
Other self-help practice	**Pearson Correlation**	0,171	0,027	.b	0,167
	Sig. (2-tailed)	0,139	0,817		0,148
	N	76	76	76	76
Σ Conventional healthcare providers	**Pearson Correlation**	0,158	0,122	0,145	-0,007
	Sig. (2-tailed)	0,109	0,216	0,143	0,941
	N	104	104	104	104
Σ CAM providers	**Pearson Correlation**	0,151	0,252	0,221	,289*
	Sig. (2-tailed)	0,281	0,068	0,112	0,036
	N	53	53	53	53
Σ CAM from doctor	**Pearson Correlation**	0,018	0,049	0,032	0,018
	Sig. (2-tailed)	0,834	0,570	0,712	0,830
	N	139	139	139	139
Σ CAM products	**Pearson Correlation**	,189*	,261**	,189*	0,086
	Sig. (2-tailed)	0,026	0,002	0,026	0,315
	N	139	139	139	139
Σ CAM products excluding vitamins	**Pearson Correlation**	,318**	0,116	0,080	-0,001
	Sig. (2-tailed)	0,000	0,172	0,348	0,986

	N	139	139	139	139
Σ Self-help practice	**Pearson Correlation**	,466**	,756**	0,089	,302**
	Sig. (2-tailed)	0,000	0,000	0,295	0,000
	N	139	139	139	139
Σ Any form of CAM use	**Pearson Correlation**	,790**	,308**	0,152	,513**
	Sig. (2-tailed)	0,000	0,000	0,075	0,000
	N	139	139	139	139

Table 43. Results of point-biserial correlation to examine the relationship between self-help practice and conventional healthcare provider, CAM provider and product utilization

	Pearson Correlation	**Meditation**	**Yoga**	**Chikung**	**Tai Chi**	**Relaxation**	**Visualization**	**Healing ceremony**	**Praying**	**Other**
Physician	**Pearson Correlation**	-0,073	0,123	0,039	0,022	0,007	-0,011	0,048	0,090	0,124
	Sig. (2-tailed)	0,463	0,245	0,732	0,844	0,945	0,920	0,680	0,367	0,375
	N	103	91	80	79	88	88	75	102	53
Psychologist	**Pearson Correlation**	,339**	-0,061	0,079	.b	,346**	,373**	0,014	,412**	,308*
	Sig. (2-tailed)	0,001	0,581	0,494		0,001	0,000	0,904	0,000	0,029
	N	97	85	78	77	86	86	73	91	50
Physiotherapist	**Pearson Correlation**	0,153	0,189	0,044	0,201	-0,024	0,096	0,036	,214*	-0,158
	Sig. (2-tailed)	0,133	0,081	0,695	0,075	0,825	0,387	0,761	0,042	0,285
	N	98	86	80	79	86	84	74	91	48
Dietitian	**Pearson Correlation**	-0,002	-0,074	,232*	.b	-0,060	-0,046	0,165	0,092	-0,169
	Sig. (2-tailed)	0,988	0,510	0,044		0,588	0,685	0,168	0,390	0,257
	N	92	81	76	75	83	82	71	89	47
Chiropractor	**Pearson Correlation**	0,036	0,098	-0,014	.b	-0,076	-0,065	.b	-0,112	-0,080
	Sig. (2-tailed)	0,742	0,391	0,908		0,504	0,574		0,309	0,591
	N	88	79	75	75	80	78	70	84	48
Homeopath	**Pearson Correlation**	0,047	0,038	-0,023	.b	0,005	0,131	-0,036	0,103	0,064
	Sig. (2-tailed)	0,659	0,738	0,841		0,963	0,249	0,767	0,347	0,666
	N	89	80	76	76	81	79	71	85	48
Acupuncturist	**Pearson Correlation**	,231*	0,098	-0,019	.b	0,060	,276*	-0,029	0,183	.b
	Sig. (2-tailed)	0,030	0,391	0,870		0,598	0,014	0,809	0,095	
	N	88	79	75	75	80	78	70	84	47
Phytotherapist	**Pearson Correlation**	0,033	-0,064	-0,014	.b	0,061	0,091	-0,021	0,150	.b
	Sig. (2-tailed)	0,758	0,577	0,908		0,588	0,423	0,865	0,171	
	N	89	79	75	75	81	79	70	85	48
Kineziologist	**Pearson Correlation**	,364**	,228*	-0,034	.b	0,112	,226*	,401**	0,191	,301*
	Sig. (2-tailed)	0,000	0,040	0,772		0,312	0,043	0,000	0,075	0,038
	N	93	82	76	76	83	81	72	88	48
Massage therapist	**Pearson Correlation**	0,181	,219*	,288*	,435**	0,108	0,095	-0,042	0,029	0,268

	Sig. (2-tailed)	0,087	0,049	0,012	0,000	0,335	0,406	0,729	0,793	0,066
	N	90	81	76	76	81	78	70	86	48
Other CAM provider	**Pearson Correlation**	.b	.b	.b	.b	.b	.b	.b	.b	.b
	Sig. (2-tailed)									
	N	2	2	2	2	2	2	2	2	0
Manipulative technique received from a doctor	**Pearson Correlation**	0,123	.b	.b	.b	0,218	0,289	0,488	0,175	.b
	Sig. (2-tailed)	0,689				0,545	0,389	0,220	0,586	
	N	13	10	9	8	10	11	8	12	7
Homeopathy received from a doctor	**Pearson Correlation**	,289*	-0,043	.b	.b	0,208	,447**	0,266	0,228	,593**
	Sig. (2-tailed)	0,026	0,764			0,136	0,001	0,074	0,089	0,000
	N	59	51	49	49	53	51	46	57	33
Acupuncture received from a doctor	**Pearson Correlation**	0,219	,258*	-0,030	-0,018	0,128	0,071	-0,037	0,069	-0,105
	Sig. (2-tailed)	0,066	0,038	0,819	0,896	0,311	0,580	0,784	0,572	0,543
	N	71	65	59	58	65	63	56	70	36
Herbs received from a doctor	**Pearson Correlation**	.b	.b	.b	.b	.b	.b	.b	0,101	.b
	Sig. (2-tailed)								0,415	
	N	69	64	58	58	63	61	55	67	36
Spiritual healing received from a doctor	**Pearson Correlation**	0,186	-0,083	-0,025	-0,018	0,051	,275*	-0,033	0,174	.b
	Sig. (2-tailed)	0,126	0,516	0,852	0,896	0,693	0,031	0,813	0,155	
	N	69	63	58	58	63	62	55	68	35
Other CAM method received from a doctor	**Pearson Correlation**	,260*	0,181	-0,051	-0,036	0,195	0,162	0,203	0,140	0,110
	Sig. (2-tailed)	0,028	0,153	0,701	0,788	0,122	0,210	0,138	0,256	0,525
	N	71	64	58	58	64	62	55	68	36
Herbs/Herbal products	**Pearson Correlation**	0,142	0,010	,298*	-0,025	0,140	0,185	-0,038	0,207	0,262
	Sig. (2-tailed)	0,243	0,938	0,022	0,852	0,274	0,153	0,782	0,093	0,123
	N	69	64	59	58	63	61	54	67	36
Vitamins/Minerals	**Pearson Correlation**	,387**	-0,057	-0,069	-0,048	,313*	,409**	0,298	0,179	0,189
	Sig. (2-tailed)	0,008	0,718	0,681	0,774	0,046	0,010	0,082	0,244	0,345
	N	46	42	38	38	41	39	35	44	27
Homeopathic remedies	**Pearson Correlation**	,344**	,228*	0,109	0,141	,232*	,253*	0,171	0,158	0,151
	Sig. (2-tailed)	0,000	0,029	0,333	0,211	0,029	0,017	0,139	0,109	0,281
	N	105	92	81	80	89	89	76	104	53
Other CAM agent	**Pearson Correlation**	0,186	-,212*	-0,005	0,076	0,140	,276**	0,027	0,122	0,252
	Sig. (2-tailed)	0,058	0,042	0,963	0,504	0,191	0,009	0,817	0,216	0,068
	N	105	92	81	80	89	89	76	104	53
Meditation	**Pearson Correlation**	0,187	0,158	,570**	1,000**	0,146	,230*	.b	0,145	0,221
	Sig. (2-tailed)	0,056	0,131	0,000	0,000	0,173	0,030		0,143	0,112
	N	105	92	81	80	89	89	76	104	53
Yoga	**Pearson Correlation**	0,115	0,167	-0,093	-0,054	-0,055	0,033	0,167	-0,007	,289*
	Sig. (2-tailed)	0,243	0,112	0,406	0,634	0,607	0,760	0,148	0,941	0,036
	N	105	92	81	80	89	89	76	104	53
Chikung	**Pearson Correlation**	1	,342**	,294**	0,172	,562**	,588**	,327**	,445**	,652**

	Sig. (2-tailed)		0,001	0,008	0,127	0,000	0,000	0,004	0,000	0,000
	N	105	89	81	80	89	87	75	93	50
Tai Chi	**Pearson Correlation**	,342**	1	0,210	0,217	,244*	0,055	0,068	0,114	,296*
	Sig. (2-tailed)	0,001		0,060	0,054	0,026	0,629	0,562	0,297	0,041
	N	89	92	81	80	83	81	75	85	48
Relaxation	**Pearson Correlation**	,294**	0,210	1	,703**	0,081	0,112	,702**	0,209	-0,065
	Sig. (2-tailed)	0,008	0,060		0,000	0,477	0,327	0,000	0,062	0,673
	N	81	81	81	80	80	79	74	81	45
Visualization	**Pearson Correlation**	0,172	0,217	,703**	1	.b	.b	.b	0,121	.b
	Sig. (2-tailed)	0,127	0,054	0,000					0,284	
	N	80	80	80	80	79	78	74	80	45
Participation in traditional healing ceremony	**Pearson Correlation**	,562**	,244*	0,081	.b	1	,665**	0,185	,415**	,380**
	Sig. (2-tailed)	0,000	0,026	0,477			0,000	0,113	0,000	0,009
	N	89	83	80	79	89	85	75	88	46
Praying	**Pearson Correlation**	,588**	0,055	0,112	.b	,665**	1	0,060	,484**	,540**
	Sig. (2-tailed)	0,000	0,629	0,327		0,000		0,610	0,000	0,000
	N	87	81	79	78	85	89	75	88	47
Other self-help practice	**Pearson Correlation**	,327**	0,068	,702**	.b	0,185	0,060	1	,248*	0,227
	Sig. (2-tailed)	0,004	0,562	0,000		0,113	0,610		0,030	0,154
	N	75	75	74	74	75	75	76	76	41
Σ Conventional healthcare providers	**Pearson Correlation**	,445**	0,114	0,209	0,121	,415**	,484**	,248*	1	,395**
	Sig. (2-tailed)	0,000	0,297	0,062	0,284	0,000	0,000	0,030		0,006
	N	93	85	81	80	88	88	76	104	47
Σ CAM providers	**Pearson Correlation**	,652**	,296*	-0,065	.b	,380**	,540**	0,227	,395**	1
	Sig. (2-tailed)	0,000	0,041	0,673		0,009	0,000	0,154	0,006	
	N	50	48	45	45	46	47	41	47	53
Σ CAM from doctor	**Pearson Correlation**	-0,017	0,121	0,038	0,022	0,137	0,123	0,048	,205*	0,124
	Sig. (2-tailed)	0,862	0,249	0,733	0,845	0,202	0,250	0,682	0,037	0,375
	N	105	92	81	80	89	89	76	104	53
Σ CAM products	**Pearson Correlation**	,366**	-0,013	,243*	0,141	,245*	,369**	,292*	,269**	0,257
	Sig. (2-tailed)	0,000	0,905	0,029	0,211	0,021	0,000	0,011	0,006	0,063
	N	105	92	81	80	89	89	76	104	53
Σ CAM products excluding vitamins	**Pearson Correlation**	,343**	0,139	0,113	-0,043	,210*	,225*	0,071	0,178	0,051
	Sig. (2-tailed)	0,000	0,188	0,315	0,708	0,048	0,034	0,545	0,071	0,719
	N	105	92	81	80	89	89	76	104	53
Σ Self-help practice	**Pearson Correlation**	,220*	-0,031	0,093	0,054	0,115	0,196	0,112	,210*	0,140
	Sig. (2-tailed)	0,024	0,769	0,406	0,634	0,282	0,065	0,335	0,032	0,318
	N	105	92	81	80	89	89	76	104	53
Σ Any form of CAM use	**Pearson Correlation**	,322**	,255*	0,063	0,113	0,157	0,198	0,112	0,153	0,235
	Sig. (2-tailed)	0,001	0,014	0,577	0,320	0,142	0,063	0,337	0,121	0,090
	N	105	92	81	80	89	89	76	104	53

Table 44. Results of point-biserial correlation to examine the relationship between the aggregate CAM utilization and conventional healthcare provider, CAM provider, product, and self-help practice use

		ΣConventional healthcare providers	Σ CAM provider	ΣCAM from doctor	Σ CAM products	Σ CAM product,s excluding vitamins	Σ Self-help practice	ΣAny form of CAM
Physician	**Pearson Correlation**	,813**	-,190*	-0,088	0,028	0,048	-0,001	-0,058
	Sig. (2-tailed)	0,000	0,028	0,310	0,751	0,580	0,993	0,508
	N	134	134	134	134	134	134	134
Psychologist	**Pearson Correlation**	0,125	0,150	0,129	0,067	-0,039	,339**	0,060
	Sig. (2-tailed)	0,199	0,122	0,182	0,488	0,690	0,000	0,535
	N	108	108	108	108	108	108	108
Physiotherapist	**Pearson Correlation**	0,096	-0,096	0,022	0,126	0,115	0,085	-0,005
	Sig. (2-tailed)	0,324	0,326	0,820	0,194	0,239	0,387	0,962
	N	107	107	107	107	107	107	107
Dietitian	**Pearson Correlation**	0,064	0,040	0,105	-0,113	-,248*	0,098	0,092
	Sig. (2-tailed)	0,523	0,690	0,297	0,259	0,012	0,331	0,359
	N	101	101	101	101	101	101	101
Chiropractor	**Pearson Correlation**	0,026	0,176	-0,058	0,073	-0,005	-0,062	0,038
	Sig. (2-tailed)	0,799	0,088	0,574	0,480	0,964	0,551	0,714
	N	95	95	95	95	95	95	95
Homeopath	**Pearson Correlation**	-,262**	,247*	-0,083	-0,027	-0,004	0,024	0,054
	Sig. (2-tailed)	0,010	0,015	0,424	0,792	0,966	0,819	0,602
	N	96	96	96	96	96	96	96
Acupuncturist	**Pearson Correlation**	0,033	,212*	0,103	0,090	-0,062	0,120	0,047
	Sig. (2-tailed)	0,754	0,039	0,319	0,384	0,550	0,248	0,652
	N	95	95	95	95	95	95	95
Phytotherapist	**Pearson Correlation**	0,032	,209*	-0,070	-0,056	0,054	-0,009	0,046
	Sig. (2-tailed)	0,756	0,040	0,494	0,585	0,599	0,928	0,655
	N	97	97	97	97	97	97	97
Kineziologist	**Pearson Correlation**	-0,115	,417**	0,028	-0,036	0,054	0,168	-0,019
	Sig. (2-tailed)	0,253	0,000	0,779	0,720	0,592	0,094	0,849
	N	100	100	100	100	100	100	100
Massage therapist	**Pearson Correlation**	0,057	,374**	0,172	-0,021	0,090	0,054	0,082
	Sig. (2-tailed)	0,578	0,000	0,092	0,836	0,379	0,602	0,424
	N	97	97	97	97	97	97	97
Other CAM provider	**Pearson Correlation**	.b	-1,000**	.b	.b	-0,500	-0,500	.b
	Sig. (2-tailed)		0,000			0,667	0,667	
	N	3	3	3	3	3	3	3
Manipulative technique received from a doctor	**Pearson Correlation**	.b	-0,490	-0,210	0,165	0,038	-0,490	.b
	Sig. (2-tailed)		0,054	0,435	0,540	0,890	0,054	
	N	16	16	16	16	16	16	16

Homeopathy received from a doctor	**Pearson Correlation**	-0,105	,657**	,548**	0,244	0,206	0,226	0,126
	Sig. (2-tailed)	0,405	0,000	0,000	0,050	0,101	0,070	0,318
	N	65	65	65	65	65	65	65
Acupuncture received from a doctor	**Pearson Correlation**	0,026	-0,090	,425**	-,224*	-0,021	0,121	0,046
	Sig. (2-tailed)	0,819	0,432	0,000	0,047	0,857	0,288	0,688
	N	79	79	79	79	79	79	79
Herbs received from a doctor	**Pearson Correlation**	0,013	-0,101	0,224	-,281*	-0,125	0,062	0,023
	Sig. (2-tailed)	0,909	0,385	0,052	0,014	0,282	0,595	0,841
	N	76	76	76	76	76	76	76
Spiritual healing received from a doctor	**Pearson Correlation**	0,023	-0,041	,378**	-,283*	-0,084	0,109	0,041
	Sig. (2-tailed)	0,841	0,723	0,001	0,013	0,471	0,349	0,724
	N	76	76	76	76	76	76	76
Other CAM method received from a doctor	**Pearson Correlation**	-0,167	0,164	,740**	-0,031	,227*	0,214	0,081
	Sig. (2-tailed)	0,143	0,152	0,000	0,785	0,045	0,060	0,481
	N	78	78	78	78	78	78	78
Herbs/Herbal products	**Pearson Correlation**	0,031	0,196	,514**	-0,193	0,032	0,142	0,054
	Sig. (2-tailed)	0,793	0,090	0,000	0,096	0,782	0,220	0,644
	N	76	76	76	76	76	76	76
Vitamins/Minerals	**Pearson Correlation**	-,507**	,343*	,761**	0,159	0,232	0,197	0,056
	Sig. (2-tailed)	0,000	0,014	0,000	0,265	0,101	0,166	0,694
	N	51	51	51	51	51	51	51
Homeopathic remedies	**Pearson Correlation**	0,018	,189*	,318**	,466**	,790**	,311**	,308**
	Sig. (2-tailed)	0,834	0,026	0,000	0,000	0,000	0,000	0,000
	N	139	139	139	139	139	139	139
Other CAM agent	**Pearson Correlation**	0,049	,261**	0,116	,756**	,308**	,197*	,499**
	Sig. (2-tailed)	0,570	0,002	0,172	0,000	0,000	0,020	0,000
	N	139	139	139	139	139	139	139
Meditation	**Pearson Correlation**	0,032	,189*	0,080	0,089	0,152	0,108	0,059
	Sig. (2-tailed)	0,712	0,026	0,348	0,295	0,075	0,206	0,490
	N	139	139	139	139	139	139	139
Yoga	**Pearson Correlation**	0,018	0,086	-0,001	,302**	,513**	0,101	,200*
	Sig. (2-tailed)	0,830	0,315	0,986	0,000	0,000	0,238	0,018
	N	139	139	139	139	139	139	139
Chikung	**Pearson Correlation**	-0,017	,366**	,343**	,220*	,322**	,553**	0,169
	Sig. (2-tailed)	0,862	0,000	0,000	0,024	0,001	0,000	0,086
	N	105	105	105	105	105	105	105
Tai Chi	**Pearson Correlation**	0,121	-0,013	0,139	-0,031	,255*	,449**	0,101
	Sig. (2-tailed)	0,249	0,905	0,188	0,769	0,014	0,000	0,339
	N	92	92	92	92	92	92	92
Relaxation	**Pearson Correlation**	0,038	,243*	0,113	0,093	0,063	0,143	0,055
	Sig. (2-tailed)	0,733	0,029	0,315	0,406	0,577	0,204	0,623
	N	81	81	81	81	81	81	81

Visualization	**Pearson Correlation**	0,022	0,141	-0,043	0,054	0,113	0,083	0,032
	Sig. (2-tailed)	0,845	0,211	0,708	0,634	0,320	0,467	0,778
	N	80	80	80	80	80	80	80
Participation in traditional healing ceremony	**Pearson Correlation**	0,137	,245*	,210*	0,115	0,157	,495**	0,197
	Sig. (2-tailed)	0,202	0,021	0,048	0,282	0,142	0,000	0,065
	N	89	89	89	89	89	89	89
Praying	**Pearson Correlation**	0,123	,369**	,225*	0,196	0,198	,447**	0,177
	Sig. (2-tailed)	0,250	0,000	0,034	0,065	0,063	0,000	0,096
	N	89	89	89	89	89	89	89
Other self-help practice	**Pearson Correlation**	0,048	,292*	0,071	0,112	0,112	0,175	0,069
	Sig. (2-tailed)	0,682	0,011	0,545	0,335	0,337	0,131	0,554
	N	76	76	76	76	76	76	76
Σ Conventional healthcare providers	**Pearson Correlation**	,205*	,269**	0,178	,210*	0,153	,723**	,242*
	Sig. (2-tailed)	0,037	0,006	0,071	0,032	0,121	0,000	0,013
	N	104	104	104	104	104	104	104
Σ CAM providers	**Pearson Correlation**	0,124	0,257	0,051	0,140	0,235	,432**	0,180
	Sig. (2-tailed)	0,375	0,063	0,719	0,318	0,090	0,001	0,198
	N	53	53	53	53	53	53	53
Σ CAM from doctor	**Pearson Correlation**	1	-0,052	-0,115	0,112	-0,005	0,144	0,122
	Sig. (2-tailed)		0,544	0,179	0,188	0,957	0,092	0,154
	N	139	139	139	139	139	139	139
Σ CAM products	**Pearson Correlation**	-0,052	1	,269**	,238**	,210*	,290**	,269**
	Sig. (2-tailed)	0,544		0,001	0,005	0,013	0,001	0,001
	N	139	139	139	139	139	139	139
Σ CAM products, excluding vitamins	**Pearson Correlation**	-0,115	,269**	1	0,108	,255**	,298**	0,163
	Sig. (2-tailed)	0,179	0,001		0,207	0,002	0,000	0,055
	N	139	139	139	139	139	139	139
Σ Self-help practice	**Pearson Correlation**	0,112	,238**	0,108	1	,589**	,282**	,661**
	Sig. (2-tailed)	0,188	0,005	0,207		0,000	0,001	0,000
	N	139	139	139	139	139	139	139
Σ Any form of CAM use	**Pearson Correlation**	-0,005	,210*	,255**	,589**	1	,317**	,389**
	Sig. (2-tailed)	0,957	0,013	0,002	0,000		0,000	0,000
	N	139	139	139	139	139	139	139

Table 45. Summary table of the significant results of the point-biserial correlation analysis to examine the relationship between the utilization of conventional health care providers and CAM providers, products, and self-help practices

Conventional healthcare or CAM provider, method, product, or practice	Correlates
Physician	(-) Homeopath (r=-.262, p=0.010) (-) Other CAM methods received from a doctor (r=-.387, p=0.006) (+) Σ Conventional healthcare providers (r=.813, p<0.001) (-) Σ CAM providers (r=-.190. p=0.028)
Psychologist	(+) Dietitian (r=.238, p=0.017) (+) Acupuncturist (r=.259, p=0.011) (+) Homeopathy received from a doctor (r=.254, p=0.045) (+) Meditation (r=.339, p=0.001) (+) Relaxation (r=.346, p=0.001) (+) Visualization (r=.373, p<0.001) (+) Praying (r=.412, p<0.001) (+) Other self-help practice (r=.308, p=0.029) (+) Σ Self-help practice utilization (r=.339, p<0.001)
Physiotherapist	(+) Acupuncturist (r=.211, p=0.040) (+) Praying (r=.214, p=0.042)
Dietitian	(+) Psychologist (r=.238, p=0,017) (+) Chikung (r=.232, p=0.044) (-) Σ CAM products excluding vitamins (r=-.248, p=0.012)
Chiropractor	(+) Massage therapist (r=.239, p=0.020)
Homeopath	(-) Physician (r=-.262, p=0.010) (+) Acupuncturist (r=.262, p=0.010) (+) Kineziologist (r=.314, p=0.002) (+) Meditation (r=.335, p=0.001) (-) Σ CAM received from a doctor (r=-.262, p=0.010) (+) Σ CAM product (r=.247, p=0.015)
Acupuncturist	(+) Psychologist (r=.259, p=0.011) (+) Physiotherapist (r=.211, p=0.040) (+) Homeopath (r=.262, p=0.010) (+) Spiritual healing received from a doctor (r=1.000, p<0.001) (+) Chikung (r=.231, p=0.030) (+) Praying (r=.276, p=0.014) (+) Σ CAM products (r=.212, p=0.039)
Phytotherapist	(+) Kineziologist (r=.220, p=0.031) (+) Σ CAM products (r=.209, p=0.040)
Kinesiologist	(+) Homeopath (r=.314, p=0.002) (+) Phytotherapist (r=.220, p=0.031) (+) Vitamins (r=.325, p=0.029) (+) Chikung (r=.364, p<0.001) (+) Tai Chi (r=.228, p=0.040) (+) Praying (r=.226, p=0.043) (+) Other self-help practice (r=.401, p<0.001) (+) Σ CAM providers (r=.301, p=0.038) (+) Σ CAM products (r=.417, p<0.001)
Massage therapist	(+) Chiropractor (r=.239, p=0.020) (+) Tai Chi (r=.219, p=0.049) (+) Relaxation (r=.288, p=0.012) (+) Visualization (r=.435, p<0.001) (+) Σ CAM products (r=.374, p<0.001)
Other CAM provider	(-) Homeopathy received from a doctor (r=-1.000, p<0.001) (-) Σ CAM products (r=-1.000, p<0.001)

Manipulative technique received from a doctor	(+) Dietitian (r=.314, p=0.007) (+) Herbal treatment received from a doctor (r=.570, p<0.001) (+) Spiritual healing received from a doctor (r=.557, p<0.001) (+) Other CAM methods received from a doctor (r=.258, p=0.024) (-) Other CAM products (r=-.243, p=0.031) (+) Tai Chi (r=.258, p=0.038) (+) Σ CAM products excluding vitamins (r=.425, p<0.001) (-) Σ Self-help practice (r=-.224, p=0.047)
Homeopathy received from a doctor	(+) Dietitian (r=.314, p=0.008) (+) Acupuncture received from a doctor (r=.570, p<0.001) (+) Spiritual healing received from a doctor (r=.702, p<0.001) (+) Other CAM methods received from a doctor (r=.315, p=0.006) (+) Herbs/Herbal preparations (r=.490, p<0.001) (-) Σ Self-help practice (r=-.281, p=0.014)
Acupuncture received from a doctor	(+) Acupuncturist (r=1.000, p<0.001) (+) Herbal treatment received from a doctor (r=.702, p<0.001) (+) Other CAM methods received from a doctor (r=.321, p=0.005) (+) Herbs/Herbal preparations (r=.329, p=0.004) (+) Praying (r=.275, p=0.031) (+) Σ CAM products excluding vitamins (r=.378, p=0.001) (-) Σ Self-help practice (r=-.283, p=0.013)
Herbal treatment received from a doctor	(+) Homeopathy received from a doctor (r=.543, p<0.001) (+) Acupuncture received from a doctor (r=.258, p=0.024) (+) Herbal treatment received from a doctor (r=.315, p=0.006) (+) Spiritual healing received from a doctor (r=.321, p=0.005) (+) Herbs/Herbal preparations (r=.302, p=0.008) (+) Vitamins/Minerals (r=.572, p<0.001) (+) Homeopathic remedies (r=.324, p=0.004) (+) Chikung (r=.260, p=0.028) (+) Σ CAM products excluding vitamins (r=.740, p<0.001) (+) Σ Any form of CAM (r=.227, p=0.045)
Spiritual healing received from a doctor	(+) Herbal treatment received from a doctor (r=.490, p<0.001) (+) Other CAM method received from a doctor (r=.302, p=0.008) (+) Vitamins/Minerals (r=.314, p=0.030) (+) Relaxation (r=.298, p=0.022) (+) Σ CAM products excluding vitamins (r=.514, p<0.001)
Other CAM method received from a doctor	(-) Physician (r=-.387, p=0.006) (+) Kineziologist (r=.325, p=0.029) (+) Homeopathy received from a doctor (r=.816, p<0.001) (+) Herbs/Herbal preparations (r=.314, p=0.030) (+) Homeopathic remedies (r=.343, p=0.014) (+) Chikung (r=.387, p=0.008) (+) Participation in a traditional healing ceremony (r=.313, p=0.046) (+) Praying (r=.409, p=0.010) (-) Σ CAM received from a doctor (r=-.507, p<0.001) (+) Σ CAM products (r=.343, p=0.014) (+) Σ CAM product excluding vitamins (r=.761, p<0.001)
Herbs/Herbal preparations	(+) Other CAM method received from a doctor (r=.324, p=0.004) (+) Vitamins/Minerals (r=.343, p=0.014) (+) Other CAM products (r=.342, p<0.0001) (+) Meditation (r=.192, p=0.023) (+) Chikung (r=.344, p<0.001) (+) Tai Chi (r=.228, p=0.029) (+) Participation in a traditional healing ceremony (r=.232, p=0.029) (+) Praying (r=.253, p=0.017) (+) Σ CAM products (r=.189, p=0.026) (+) Σ CAM produts excluding vitamins (r=.318, p<0.001)

	(+) Σ Self-help practice (r=.466, p<0.001) (+) Σ Any form of CAM (r=.790, p<0.001)
Vitamins/Minerals	(+) Homeopathy received from a doctor (r=.327, p=0.008) (-) Acupuncture received from a doctor (r=-.243, p=0.031) (+) Homeopathic remedies (r=.342, p<0.001) (-) Tai Chi (r=-.212, p=0.042) (+) Praying (r=.276, p=0.009) (+) Σ CAM produts (r=.261, p=0.002) (+) Σ Self-help practice (r=.756, p<0.001) (+) Σ Any form of CAM (r=.308, p<0.001)
Homeopathic remedies	(+) Homeopath (r=.335, p=0.001) (+) Relaxation (r=.570, p<0.001) (+) Visualization (r=1.000, p<0.001) (+) Praying (r=.230, p=0.030) (+) Σ CAM products (r=.189, p=0.026)
Other supplementary agents	(+) Σ Self-help practice (r=.302, p<0.001) (+) Σ Any form of CAM (r=.513, p<0.001)
Meditation	(+) Psychologist (r=.339, p=0.001) (+) Acupuncturist (r=.231, p=0.030) (+) Kineziologist (r=.364, p<0.001) (+) Homeopathy received from a doctor (r=.289, p=0.026) (+) Other CAM method received from a doctor (r=.260, p=0.028) (+) Vitamins/Minerals (r=.387, p=0.008) (+) Homeopathic remedies (r=.344, p<0.001) (+) Tai Chi (r=.342, p=0.001) (+) Relaxation (r=.294, p=0.008) (+) Participation in a traditional healing ceremony (r=.562, p<0.001) (+) Praying (r=.588, p<0.001) (+) Other self-help practice (r=.327, p=0.004) (+) Σ Conventional healthcare provider (r=.445, p<0.001) (+) Σ CAM providers (r=.652, p<0.001) (+) Σ CAM products (r=.366, p<0.001) (+) Σ CAM products excluding vitamins (r=.343, p<0.001) (+) Σ Self-help practice (r=.220, p=0.024) (+) Σ Any form of CAM use (r=.322, p=0.001)
Yoga	(+) Kineziologist (r=.228, p=0.040) (+) Massage therapist (r=.219, p=0.049) (+) Acupuncture received from a doctor (r=.258, p=0.038) (+) Homeopathic remedies (r=.228, p=0.029) (-) Other CAM product (r=-.212, p=0.042) (+) Chikung (r=.342, p=0.001) (+) Participation in a traditional healing ceremony (r=.244, p=0.026) (+) Σ CAM providers (r=.296, p=0.041) (+) Σ Any form of CAM (r=.255, p=0.014)
Chikung	(+) Dietitian (r=.232, p=0.044) (+) Herbs/Herbal preparations (r=.298, p=0.022) (+) Meditation (r=.570, p<0.001) (+) Chikung (r=.294, p=0.008) (+) Visualization (r=.703, p<0.001) (+) Other self-help practice (r=.702, p<0.001) (+) Σ CAM products (r=.243, p=0.029)
Tai Chi	(+) Massage therapist (r=.435, p<0.001) (+) Meditation (r=1.000, p<0.001) (+) Relaxation (r=.703, p<0.001)
Relaxation	(+) Psychologist (r=.346, p=0.001) (+) Vitamins/Minerals (r=.313, p=0.046) (+) Homeopathic remedies (r=.232, p=0.029)

	(+) Chikung (r=.562, p<0.001) (+) Tai Chi (r=.244, p=0.026) (+) Praying (r=.665, p<0.001) (+) Σ Conventional healthcare providers (r=.415, p<0.001) (+) Σ CAM providers (r=.380, p=0.009) (+) Σ CAM products (r=.245, p=0.021) (+) Σ CAM products excluding vitamins (r=.210, p=0.048)
Visualization	(+) Psychologist (r=.373, p<0.001) (+) Acupuncturist (r=.276, p=0.014) (+) Kineziologist (r=.226, p=0.043) (+) Homeopathy received from doctor (r=.447, p=0.001) (+) Spiritual healing received from a doctor (r=.275, p=0.031) (+) Vitamins/Minerals (r=.409, p=0.010) (+) Homeopathic remedies (r=.253, p=0.017) (+) Other CAM products (r=.276, p=0.009) (+) Meditation (r=.230, p=0.030) (+) Chikung (r=.588, p<0.001) (+) Participation in a traditional healing ceremony (r=.665, p<0.001) (+) Σ Conventional healthcare providers (r=.484, p<0.001) (+) Σ CAM providers (r=.540, p<0.001) (+) Σ CAM products (r=.369, p<0.001) (+) Σ CAM products excluding vitamins (r=.225, p=0.034)
Participation in a traditional healing ceremony	(+) Kineziologist (r=.401, p<0.001) (+) Chikung (r=.327, p=0.004) (+) Relaxation (r=.702, p<0.001) (+) Σ Conventional healthcare providers (r=.248, p=0.030) (+) Σ CAM products (r=.292, p=0.011)
Praying	(+) Psychologist (r=.412, p<0.001) (+) Physiotherapist (r=.214, p=0.042) (+) Chikung (r=.445, p<0.001) (+) Participation in traditional healing ceremony (r=.415, p<0.001) (+) Other self-help practice (r=.248, p=0.030) (+) Σ CAM providers (r=.395, p=0.006) (+) Σ CAM from doctor (r=.205, p=0.037) (+) Σ CAM product (r=.269, p=0.006) (+) Σ Self-help practice (r=.210, p=0.032)
Other self-help practice	(+) Psychologist (r=.308, p=0.029) (+) Kineziologist (r=.301, p=0.038) (+) Homeopathy from doctor (r=.593, p<0.001) (+) Yoga (r=.289, p=0.036) (+) Chikung (r=.652, p<0.001) (+) Tai Chi (r=.296, p=0.041) (+) Participation in traditional healing ceremony (r=.380, p=0.009) (+) Pray (r=.540, p<0.001) (+) Σ Conventional healthcare providers (r=.395, p=0.006)
Σ Conventional Healthcare providers	(+) Physician (r=.813, p<0.001) (-) Homeopath (r=-.262, p=0.010) (-) Vitamins/Minerals (r=-.507, p<0.001)
Σ CAM provider use	(-) Physician (r=-.190, p=0.028) (+) Homeopath (r=.247, p=0.015) (+) Acupuncturist (r=.212, p=0.039) (+) Phytotherapist (r=.209, p=0.040) (+) Kineziologist (r=.417, p<0.001) (+) Massage therapist (r=.374, p<0.001 (-) Other CAM provider (r=-1.000, p<0.001) (+) Homeopathy from doctor (r=.657, p<0.001) (+) Vitamins/Minerals (r=.343, p=0.014)

	(+) Homeopathic remedies (r=.189, p=0.026) (+) Other CAM agent (r=.261, p=0.002) (+) Meditation (r=.189, p=0.026) (+) Chikung (r=.366, p<0.001) (+) Relaxation (r=.243, p=0.029) (+) Participation in traditional healing ceremony (r=.245, p=0.021) (+) Other self-help practice (r=.292, p=0.011) (+) Σ Conventional healthcare providers (r=.269, p=0.006) (+) Σ CAM product excluding vitamins (r=.269, p=0.001) (+) Σ Self-help practice (r=.238, p=0.005) (+) Σ Any form of CAM use (r=.210, p=0.013)
Σ CAM received from a doctor	(+) Homeopathy from doctor (r=.548, p<0.001) (+) Acupuncture from doctor (r=.425, p<0.001) (+) Spiritual healing from doctor (r=.378, p=0.001) (+) Other CAM method from doctor (r=.740, p<0.001) (+) Herbs/Herbal preparations (r=.514, p<0.001) (+) Vitamins/Minerals (r=.761, p<0.001) (+) Homeopathic remedies (r=.318, p<0.001) (+) Chikung (r=.343, p<0.001) (+) Participation in traditional healing ceremony (r=.210, p=0.048) (+) Praying (r=.225, p=0.034) (+) Σ CAM products (r=.269, p=0.001) (+) Σ Any form of CAM use (r=.255, p=0.002)
Σ CAM products use	(-) Acupuncture from doctor (r=-.224, p=0.047) (-) Herbs from doctor (r=-.281, p=0.014) (-) Spiritual healing from doctor (r=-.283, p=0.013) (+) Homeopathic remedies (r=.466, p<0.000) (+) Other CAM agent (r=.756, p<0.001) (+) Yoga (r=.302, p<0.001) (+) Σ Conventional healthcare providers (r=.210, p=0.032) (+) Σ CAM products (r=.238, p=0.005) (+) Σ Any form of CAM use (r=.589, p<0.001)
Σ CAM products (excluding vitamins) use	(-) Dietitian (r=-.248, p=0.012) (+) Other CAM method from doctor (r=.227, p=0.045) (+) Homeopathic remedies (r=.790, p<0.001) (+) Other CAM agent (r=.308, p<0.001) (+) Yoga (r=.513, p<0.001) (+) Chikung (r=.322, p=0.001) (+) Tai Chi (r=.255, p=0.014) (+) Σ CAM products (r=.210, p=0.013) (+) Σ Self-help practices (r=.589, p<0.001)
Σ Self-help practices utilization	(+) Psychologist (r=.339, p<0.001) (+) Homeopathic remedies (r=.311, p<0.000) (+) Other CAM agent (r=.197, p=0.020) (+) Chikung (r=.553, p<0.001) (+) Tai Chi (r=.449, p<0.001) (+) Participation in traditional healing ceremony (r=.495, p<0.001) (+) Praying (r=.447, p<0.001) (+) Σ Conventional healthcare providers (r=.723, p<0.001) (+) Σ CAM providers (r=.432, p=0.001) (+) Σ CAM products (r=.290, p=0.001) (+) Σ CAM product excluding vitamins (r=.298, p<0.001) (+) Σ Self-help practice (r=.282, p=0.001) (+) Σ Any form of CAM use (r=.317, p<0.001)
Σ Any form of CAM	(+) Homeopathic remedies (r=.308, p<0.001) (+) Other CAM agent (r=.499, p<0.001) (+) Yoga (r=.200, p=0.018) (+) Σ Conventional healthcare providers (r=.242, p=0.013)

	(+) Σ CAM products (r=.269, p=0.001) (+) Σ Self-help practices (r=.661, p<0.001) (+) Σ Any form of CAM use (r=.389, p<0.001)

Table 46. Correlations of CAM services, products, and practices with psychological indicators

		CAM provider	CAM received from a doctor	CAM products	CAM products (excluding vitamins)	Self-help practices
Self-Rated Health	**Pearson Correlation**	,232**	0,144	0,049	0,004	,177*
	Sig. (2-tailed)	0,006	0,093	0,570	0,967	0,039
	N	137	137	137	137	137
Social Dimenson Scale	**Pearson Correlation**	,212*	0,113	,184*	0,101	,285**
	Sig. (2-tailed)	0,012	0,183	0,030	0,237	0,001
	N	139	139	139	139	139
FQCI Depressive and resigned coping	**Pearson Correlation**	0,067	0,013	-0,051	-0,010	0,101
	Sig. (2-tailed)	0,432	0,880	0,551	0,905	0,235
	N	139	139	139	139	139
FQCI Active and problem-focused coping	**Pearson Correlation**	0,076	0,003	-0,025	-0,107	-0,024
	Sig. (2-tailed)	0,377	0,974	0,772	0,210	0,780
	N	139	139	139	139	139
FQCI Self-affirmation and distraction	**Pearson Correlation**	0,005	-0,124	-0,032	-0,056	0,006
	Sig. (2-tailed)	0,957	0,147	0,711	0,514	0,949
	N	138	138	138	138	138
FQCI Searching for meaning and religious coping	**Pearson Correlation**	,208*	,212*	,182*	0,114	,432**
	Sig. (2-tailed)	0,014	0,013	0,033	0,182	0,000
	N	138	138	138	138	138
HCAMQ CAM scale	**Pearson Correlation**	-,289**	-0,131	-0,084	-,203*	-0,079
	Sig. (2-tailed)	0,001	0,129	0,328	0,018	0,360
	N	136	136	136	136	136
HCAMQ Holistic Health Beliefs	**Pearson Correlation**	0,078	-0,111	0,039	,176*	-0,114
	Sig. (2-tailed)	0,362	0,196	0,652	0,039	0,182
	N	138	138	138	138	138
MHLC Internal control	**Pearson Correlation**	,205*	0,120	0,132	0,161	0,024
	Sig. (2-tailed)	0,016	0,159	0,120	0,059	0,780
	N	139	139	139	139	139
MHLC Chance	**Pearson Correlation**	-0,128	-0,104	0,053	-0,011	0,007
	Sig. (2-tailed)	0,133	0,224	0,538	0,901	0,939
	N	139	139	139	139	139
MHLC Doctor and Others	**Pearson Correlation**	-0,042	-0,004	-0,041	-0,099	0,059
	Sig. (2-tailed)	0,622	0,966	0,634	0,246	0,490
	N	139	139	139	139	139
HADS-Anxiety	**Pearson Correlation**	0,007	-0,023	-0,151	-0,029	0,060
	Sig. (2-tailed)	0,938	0,787	0,077	0,735	0,485
	N	139	139	139	139	139

HADS-Depression	**Pearson Correlation**	-0,012	-0,026	-0,060	0,021	0,068
	Sig. (2-tailed)	0,891	0,763	0,481	0,809	0,429
	N	139	139	139	139	139

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 47. Correlations of CAM services, products, and practices with clinical indicators

		CAM provider	CAM received from a doctor	CAM products	CAM products (excluding vitamins)	Self-help practices
Time from diagnosis to questionnaire completion	**Pearson Correlation**	-0,086	-0,022	-0,105	-0,031	0,058
	Sig. (2-tailed)	0,311	0,794	0,220	0,719	0,498
	N	139	139	139	139	139
Time from first symptom to medical attention	**Pearson Correlation**	0,057	-0,016	0,009	-0,039	0,012
	Sig. (2-tailed)	0,509	0,852	0,912	0,647	0,885
	N	138	138	138	138	138
Time from screening test to doctor visit	**Pearson Correlation**	-0,042	-0,004	0,075	0,118	-0,148
	Sig. (2-tailed)	0,629	0,966	0,396	0,177	0,090
	N	132	132	132	132	132
Stage	**Pearson Correlation**	-0,010	0,031	-0,111	0,050	,187*
	Sig. (2-tailed)	0,913	0,724	0,205	0,566	0,031
	N	132	132	132	132	132
Psychosocial care provided at the hospital prior to completion	**Pearson Correlation**	0,025	0,103	0,038	0,009	,315**
	Sig. (2-tailed)	0,772	0,227	0,655	0,913	0,000
	N	139	139	139	139	139
Comorbid somatic disease	**Pearson Correlation**	,272**	-0,012	0,149	0,019	,174*
	Sig. (2-tailed)	0,002	0,895	0,088	0,829	0,047
	N	131	131	131	131	131
Psychiatric, neurological medical history	**Pearson Correlation**	-0,153	-0,026	-0,081	-0,026	-0,070
	Sig. (2-tailed)	0,078	0,765	0,351	0,763	0,423
	N	134	134	134	134	134
Family history of cancer	**Pearson Correlation**	-0,002	-0,008	0,051	0,073	-0,072
	Sig. (2-tailed)	0,982	0,927	0,555	0,395	0,402
	N	136	136	136	136	136
Systemic treatment (chemo, endocrine, biological) received before questionnaire	**Pearson Correlation**	0,137	0,057	0,014	0,088	0,106
	Sig. (2-tailed)	0,109	0,506	0,867	0,303	0,213
	N	139	139	139	139	139
Any oncological treatment received	**Pearson Correlation**	0,053	0,040	0,110	0,096	0,094

before the questionnaire	**Sig. (2-tailed)**	0,535	0,637	0,197	0,258	0,270
	N	139	139	139	139	139
Endocrine therapy	**Pearson Correlation**	0,148	0,036	-0,090	-0,032	-0,005
	Sig. (2-tailed)	0,083	0,674	0,292	0,706	0,954
	N	139	139	139	139	139
Type of Surgery during current admission: Cancer-related/ Reconstruction	**Pearson Correlation**	0,159	0,046	0,087	0,029	0,108
	Sig. (2-tailed)	0,062	0,595	0,309	0,734	0,207
	N	139	139	139	139	139

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 48. Binary logistic regression predicting CAM use

Dependent variable: aggregated CAM use	Model 1 R^2 = .128, .098 (Cox & Snell), .178 (Nagelkerke). Hosmer & Lemeshow χ^2=13.932 (df=8; p= .084) Model $\chi^2(1)$ = 12.02, df=4, p=.017*				Model 2 R^2 = .142, .108 (Cox & Snell), .196 (Nagelkerke). Hosmer & Lemeshow χ^2=8.632 (df=8; p= .374) Model $\chi^2(2)$ = 13.34, df=6, p= .038*				Final Model R^2 = .306, .217 (Cox & Snell), .394 (Nagelkerke). Hosmer & Lemeshow χ^2=6.787 (df=8; p= .560) Model χ^2 = 28.58, df=15, p= .018*			
Predictor variables	**B (SE)**	**Lower**	**Odds Ratio (95% CI)**	**Upper**	**B (SE)**	**Lower**	**Odds Ratio (95% CI)**	**Upper**	**B (SE)**	**Lower**	**Odds Ratio (95% CI)**	**Upper**
Age	-0,078* (0,031)	0,870	0,925	0,983	-0,066* (0,032)	0,878	0,997	0,997	-0,061 (0,039)	0,872	0,941	0,941
Number of people living in a household	0,042 (0,314)	0,564	1,042	1,928	0,058 (0,312)	0,575	1,954	1,954	-0,084 (0,374)	0,442	0,920	0,920
Education	-0,357 (0,577)	0,226	0,700	2,168	-0,314 (0,583)	0,233	2,290	2,290	0,050 (0,771)	0,232	1,051	1,051
Marital status	0,579 (0,733)	0,424	1,784	7,501	0,542 (0,760)	0,388	7,628	7,628	1,258 (0,991)	0,505	3,518	3,518
Comorbid somatic disease					-0,706 (0,623)	0,145	1,675	1,675	-0,966 (0,744)	0,088	0,381	0,381
Stage					0,204 (0,643)	0,348	4,324	4,324	0,486 (0,873)	0,294	1,626	1,626
Self-Rated Health									-0,092 (0,198)	0,619	0,912	0,912
Social Dimension Scale									0,116 (0,072)	0,975	1,123	1,123
FQCI Depressive and resigned coping									-0,099 (0,503)	0,338	0,906	0,906
FQCI Active and problem-focused coping									0,244 (0,500)	0,479	1,276	1,276
FQCI Self-affirmation and distraction									-0,358 (0,429)	0,302	0,699	0,699
FQCI Searching for meaning and religious coping									1,057**(0,404)	1,303	2,877	2,877
MHLC Internal control									0,082 (0,069)	0,947	1,085	1,085
MHLC Chance									-0,007 (0,064)	0,876	0,993	0,993
MHLC Doctor and Others									0,011 (0,097)	0,836	1,011	1,011
Constant	5,544* (2,198)		255,637		5,129* (2,192)		0,997		-0,650 (4,973)		0,522	

*Significant at the 0.05 level

** Significant at the 0.01 level

***Significant at the 0.001 level

Table 49. Binary logistic regression predicting CAM provider use

Dependent variable: CAM provider use	Model 1 R^2 = .039, .052 (Cox & Snell), .070 (Nagelkerke). Hosmer & Lemeshow χ^2=15030. (df=8; p= .059) Model $\chi^2(1)$ = 6.213, df=4, p= .184				Model 2 R^2 = .064, .083 (Cox & Snell), .112 (Nagelkerke). Hosmer & Lemeshow χ^2=18.528 (df=8; p= .018)* Model $\chi^2(2)$ = 10.156, df=6, p= .118				Final Model R^2 = .202, .239 (Cox & Snell), .322 (Nagelkerke). Hosmer & Lemeshow χ^2=6.834 (df=8; p= .555) Model χ^2= 31.897, df=15, p= .007**			
Predictor variables	**B (SE)**	**Lower**	**Odds Ratio (95% CI)**	**Upper**	**B (SE)**	**Lower**	**Odds Ratio (95% CI)**	**Upper**	**B (SE)**	**Lower**	**Odds Ratio (95% CI)**	**Upper**
Age	-0,046 (0,021)	0,916	0,955	0,996	-0,035 (0,023)	0,924	0,965	1,009	-0,031 (0,026)	0,921	0,970	1,021
Number of people living in a household	-0,050 (0,184)	0,663	0,951	1,364	-0,017 (0,189)	0,679	0,983	1,424	-0,176 (0,235)	0,529	0,839	1,330
Education	-0,185 (0,404)	0,377	0,831	1,833	-0,149 (0,416)	0,382	0,862	1,947	0,052 (0,512)	0,386	1,053	2,870
Marital status	-0,486 (0,575)	0,199	0,615	1,898	-0,602 (0,598)	0,169	0,548	1,769	-0,386 (0,699)	0,173	0,680	2,675
Comorbid somatic disease					-0,844 (0,442)	0,181	0,430	1,023	-0,954 (0,540)	0,134	0,385	1,111
Stage					-0,133 (0,430)	0,376	0,875	2,034	-0,519 (0,536)	0,208	0,595	1,703
Self-Rated Health									0,268* (0,135)	1,003	1,308	1,706
Social Dimension Scale									0,042 (0,046)	0,953	1,043	1,142
FQCI Depressive and resigned coping									0,263 (0,347)	0,659	1,300	2,565
FQCI Active and problem-focused coping									0,107 (0,413)	0,495	1,113	2,502
FQCI Self-affirmation and distraction									-0,330 (0,325)	0,380	0,719	1,360
FQCI Searching for meaning and religious coping									0,565* (0,253)	1,072	1,760	2,890
MHLC Internal control									0,102* (0,044)	1,017	1,107	1,206
MHLC Chance									-0,064 (0,048)	0,853	0,938	1,031
MHLC Doctor and Others									-0,031 (0,060)	0,862	0,969	1,090
Constant	2,491 (1,401)		12,077		2,277 (1,441)		9,744		-2,465 (3,114)		0,085	

*Significant at the 0.05 level

** Significant at the 0.01 level

***Significant at the 0.001 level

Table 50. Binary logistic regression predicting CAM product use

Dependent variable: CAM product use	Model 1 R^2 = .057, .065 (Cox & Snell), .094 (Nagelkerke). Hosmer & Lemeshow χ^2=9.051 (df=8; p= .338) Model $\chi^2(1)$ = 7.908, p= .095				Model 2 R^2 = .098, .110 (Cox & Snell), .158 (Nagelkerke). Hosmer & Lemeshow χ^2=7.804 (df=8; p= .453) Model $\chi^2(2)$ = 13.591, p= .035*				Final Model R^2 = .176, .189 (Cox & Snell), .271 (Nagelkerke). Hosmer & Lemeshow χ^2=16.590 (df=8; p= .035)* Model χ^2 = 24.456, p= .058			
Predictor variables	**B (SE)**	**Lower**	**Odds Ratio (95% CI)**	**Upper**	**B (SE)**	**Lower**	**Odds Ratio (95% CI)**	**Upper**	**B (SE)**	**Lower**	**Odds Ratio (95% CI)**	**Upper**
Age	-0,013 (0,022)	0,947	0,988	1,030	-0,006 (0,023)	0,950	0,994	1,040	0,001 (0,025)	0,953	1,001	1,052
Number of people living in a household	0,432 (0,231)	0,979	1,540	2,423	0,425 (0,234)	0,968	1,530	2,419	0,411 (0,267)	0,895	1,509	2,546
Education	-0,541 (0,433)	0,249	0,582	1,361	-0,491 (0,446)	0,255	0,612	1,465	-0,541 (0,525)	0,208	0,582	1,631
Marital status	-0,471 (0,629)	0,182	0,624	2,143	-0,377 (0,651)	0,191	0,686	2,457	-0,204 (0,733)	0,194	0,816	3,429
Comorbid somatic disease					-0,597 (0,467)	0,221	0,550	1,374	-0,602 (0,539)	0,191	0,548	1,574
Stage					1,028 (0,529)	0,992	2,797	7,882	0,801 (0,608)	0,676	2,228	7,341
Self-Rated Health									-0,036 (0,139)	0,735	0,965	1,267
Social Dimension Scale									0,067 (0,049)	0,972	1,069	1,176
FQCI Depressive and resigned coping									-0,131 (0,352)	0,440	0,878	1,750
FQCI Active and problem-focused coping									0,376 (0,402)	0,663	1,456	3,200
FQCI Self-affirmation and distraction									-0,252 (0,308)	0,425	0,778	1,422
FQCI Searching for meaning and religious coping									0,428 (0,247)	0,945	1,534	2,489
MHLC Internal control									0,058 (0,047)	0,966	1,060	1,162
MHLC Chance									0,054 (0,050)	0,957	1,056	1,165
MHLC Doctor and Others									-0,128 (0,070)	0,767	0,880	1,010
Constant	0,980 (1,478)		2,664		0,550 (1,530)		1,733		-1,356 (3,237)		0,258	

*Significant at the 0.05 level

** Significant at the 0.01 level

***Significant at the 0.001 level

Table 51. Binary logistic regression predicting CAM product (excluding vitamins) use

Dependent variable: Use of CAM products excluding vitamins	Model 1 R^2 = .996, .006 (Cox & Snell), .008 (Nagelkerke). Hosmer & Lemeshow χ^2=3.089 (df=8; p= .929) Model $\chi^2(1)$ = .679, df=4, p= .954				Model 2 R^2 = .001, .009 (Cox & Snell), .012 (Nagelkerke). Hosmer & Lemeshow χ^2=2.804 (df=8; p= .946) Model $\chi^2(2)$ = 1.078, df=6, p= .982				Final Model R^2 = .913, .113 (Cox & Snell), .151 (Nagelkerke). Hosmer & Lemeshow χ^2=3.211 (df=8; p= .920) Model χ^2 = 14.065, df=15, p= .521			
Predictor variable	**B (SE)**	**Lower**	**Odds Ratio (95% CI)**	**Upper**	**B (SE)**	**Lower**	**Odds Ratio (95% CI)**	**Upper**	**B (SE)**	**Lower**	**Odds Ratio (95% CI)**	**Upper**
Age	-0,002 (0,020)	-0,002	0,998	0,020	-0,002 (0,021)	0,959	0,998	1,039	0,010 (0,023)	0,967	1,010	1,056
Number of people living in a household	0,081 (0,180)	0,081	1,084	0,180	0,085 (0,181)	0,763	1,089	1,552	0,029 (0,210)	0,682	1,029	1,553
Education	-0,112 (0,385)	-0,112	0,894	0,385	-0,130 (0,388)	0,410	0,878	1,880	-0,249 (0,455)	0,320	0,780	1,901
Marital status	-0,388 (0,557)	-0,388	0,679	0,557	-0,423 (0,562)	0,218	0,655	1,972	-0,284 (0,637)	0,216	0,753	2,622
Comorbid somatic disease					-0,007 (0,409)	0,446	0,993	2,213	0,158 (0,467)	0,469	1,171	2,925
Stage					-0,255 (0,405)	0,350	0,775	1,715	-0,584 (0,469)	0,222	0,557	1,398
Self-Rated Health									-0,076 (0,117)	0,736	0,927	1,166
Social Dimension Scale									0,068 (0,042)	0,986	1,070	1,162
FQCI Depressive and resigned coping									-0,139 (0,300)	0,483	0,870	1,568
FQCI Active and problem-focused coping									-0,103 (0,365)	0,441	0,902	1,846
FQCI Self-affirmation and distraction									-0,104 (0,271)	0,530	0,901	1,531
FQCI Searching for meaning and religious coping									0,228 (0,213)	0,828	1,257	1,907
MHLC Internal control									0,094* (0,040)	1,017	1,099	1,188
MHLC Chance									0,019 (0,040)	0,941	1,019	1,103
MHLC Doctor and Others									-0,139* (0,056)	0,780	0,870	0,971
Constant	0,121 (1,316)		1,129		0,202 (1,339)		1,224		0,581 (2,832)		1,788	

*Significant at the 0.05 level

** Significant at the 0.01 level

***Significant at the 0.001 level

Table 52. Binary logistic regression predicting self-help practice utilization

Dependent variable: Self-help practice	Model 1 R^2 = .053, .066 (Cox & Snell), .091 (Nagelkerke). Hosmer & Lemeshow χ^2=13.985 (df=8; p= .082) Model $\chi^2(1)$ = 7.992, df=4, p= .092				Model 2 R^2 = .071, .087 (Cox & Snell), .120 (Nagelkerke). Hosmer & Lemeshow χ^2=9.740 (df=8; p= .284) Model χ^2 = 10.644, df=6, p= .100				Final Model R^2 = .324, .341 (Cox & Snell), .471 (Nagelkerke). Hosmer & Lemeshow χ^2=6.881 (df=8; p= .550) Model χ^2 = 48.759, df=15, p< .001***			
Predictor variables	**B (SE)**	**Lower**	**Odds Ratio (95% CI)**	**Upper**	**B (SE)**	**Lower**	**Odds Ratio (95% CI)**	**Upper**	**B (SE)**	**Lower**	**Odds Ratio (95% CI)**	**Upper**
Age	-0,032 (0,021)	0,929	0,969	1,010	-0,027 (0,023)	0,931	0,973	1,017	-0,019 (0,029)	0,928	0,981	1,038
Number of people living in a household	0,174 (0,207)	0,793	1,190	1,785	0,200 (0,210)	0,809	1,222	1,845	-0,061 (0,289)	0,533	0,941	1,658
Education	-0,645 (0,410)	0,235	0,525	1,173	-0,675 (0,420)	0,224	0,509	1,161	-0,900 (0,582)	0,130	0,407	1,271
Marital status	-0,312 (0,595)	0,228	0,732	2,348	-0,442 (0,610)	0,195	0,643	2,125	-0,248 (0,758)	0,177	0,781	3,450
Comorbid somatic disease					-0,249 (0,444)	0,326	0,780	1,862	-0,136 (0,581)	0,280	0,873	2,724
Stage					-0,656 (0,437)	0,220	0,519	1,221	-0,968 (0,610)	0,115	0,380	1,254
Self-Rated Health									0,245 (0,145)	0,961	1,278	1,698
Social Dimension Scale									0,130* (0,060)	1,012	1,139	1,282
FQCI Depressive and resigned coping									0,449 (0,381)	0,743	1,567	3,305
FQCI Active and problem-focused coping									0,191 (0,426)	0,525	1,210	2,789
FQCI Self-affirmation and distraction									0,054 (0,337)	0,545	1,055	2,043
FQCI Searching for meaning and religious coping									1,242***(0,322)	1,843	3,464	6,509
MHLC Internal control									0,017 (0,047)	0,926	1,017	1,116
MHLC Chance									-0,007 (0,052)	0,896	0,993	1,099
MHLC Doctor and Others									-0,023 (0,075)	0,843	0,978	1,133
Constant	2,272 (1,461)		9,698		2,409 (1,502)		11,128		-6,416 (3,748)		0,002	

*Significant at the 0.05 level

** Significant at the 0.01 level

***Significant at the 0.001 level

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