


## Article

# Exploring Health and Premature Mortality of Wheelchair Users from a Medical and a Greek-Orthodox Perspective

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**Abstract:** Wheelchair users have a lower life expectancy compared to the general population. This project aims to provide a deeper understanding of the interaction between physical, psychological, social, and spiritual factors that affect the mortality and health of this target group. The methods used were qualitative. Data from phenomenological interviews, questionnaires, medical reports, and existing literature were composed to develop a grounded theory depicting the overall health of wheelchair users. The research team explored death causes, risk factors of premature death, and contributors that affect risk factors. In the discussion, we explored and analyzed specific patterns of interaction of the factors in the data and other research projects. Moreover, we attempted to analyze these patterns through the viewpoint of the Greek-Orthodox tradition. In general, the project confirmed previous research findings. The most common death causes seemed to be heart attacks and cancer. These seemed to be affected mainly by obesity, physical inactivity, unhealthy lifestyle, and inadequate preventive healthcare. Spiritual practices based on the Greek-Orthodox tradition are suggested as ways of management. The conclusions can be useful not only to health and social care professionals and clerics, but also wheelchair users themselves.

**Keywords:** wheelchair users; Orthodox spirituality; mortality; disability; health



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## 1. Introduction

A couple of years ago, we observed an unjustifiably increased number of premature deaths of wheelchair users. Exploring the literature, we discovered several studies, mainly concerning death causes and risk factors, from a medical point of view. Social and spiritual factors, specifically those related to an Orthodox way of life, seemed to have been underrepresented.

The project explores the overall health of wheelchair users. Specifically, it has four research orientations: medical/physical, mental/emotional/psychological, social/environmental, and spiritual. The orientations are compatible with the most inclusive approach to health, namely the biopsychosocial-spiritual model (Sulmasy 2002). The research questions, which concern the prevention of premature death and health promotion, were the following: Which are the most common causes of premature death of wheelchair users? Which are the most common risk factors and contributors that affect the health and mortality of wheelchair users? How do physical, mental, social, and spiritual factors interact, affecting the health and mortality of wheelchair users? Can an Orthodox way of life contribute to improving physical, psychological, social, and spiritual health?

The fundamental concepts are health and mortality. According to the WHO, health is defined as a ‘state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity’ ([World Health Organization n.d.](#)). Thus, health is a complex concept, not confined to physical function. From an Orthodox point of view, health is a ‘temporary balance between the forces of life and other forces that oppose them.’ At the same time, illness can cause physical, psychological, and spiritual suffering, reminding us of our fragile nature, which is destined to die ([Larchet 2002](#), p. 9). Mortality is ‘the proportion of deaths to the population’ ([Merriam-Webster.com Dictionary n.d.](#)). Death from a spiritual point of view, however, is a passage to eternal life, with a hoping, resting, and resurrection perspective ([Choilous 2016](#)). Health includes physical, mental, and ontological dimensions in an inseparable unity of body, soul, and spirit (*1 Thess.* 5, 23). However, it is not just a combination of the three elements, since ‘spirit’ means to live ‘in Holy Spirit’ ([Larchet 2008](#), V1, pp. 51–52). Health is linked with God’s perfectness, which is bestowed to humans through ‘image and likeness’ and concerns the perfectness of mental powers, free will, and wishing and loving powers. Ideal health is characterized by the absence of any disease, as it was before the Fall ([Larchet 2008](#), V1, pp. 23–24, 32–34, 52–53).

The sample included data concerning those who died prematurely and data concerning the everyday life of wheelchair users with an average age similar to the first ones from Thessaloniki, Greece. The research methods were qualitative because we wanted to explore the phenomenon in depth. The research showed heart attack and cancer as the most common death cause, with obesity, physical inactivity, and unhealthy lifestyle as the main risk factors.

## 2. Literature Review

In this part, we will depict the situation concerning the health and mortality of wheelchair users. Research results, death causes, risk factors, and factors that affect them will be presented. Moreover, the approach of the Orthodox tradition related to the theme aims to merge traditional ideas and practices with contemporary findings and concepts.

### 2.1. Demographic—General

Persons with disabilities are subjected to considerably higher rates of mortality compared to the general population ([Forman-Hoffman et al. 2015](#), p. 346). Persons with spinal cord injury (SCI) experience a considerably low life expectancy, although their survival rates have increased over the last 70 years ([DeVivo et al. 1999](#), p. 1411; [Middleton et al. 2012](#), p. 9). Moreover, persons with SCI at a young age have a lower life expectancy compared to those injured during adulthood ([Shavelle et al. 2007](#), p. 553). The mortality of persons with SCI can be predicted by their age, neurological level of injury, degree of injury completeness, and ventilation dependency. Alcohol abuse, poor self-care, activity level, employment, adaptation after SCI, and long-term care are also predictors of mortality ([DeVivo et al. 1999](#), p. 1411).

Besides gender, area of residence, socio-economic status, race, education, and country of residence, which affect the life expectancy of the general population, persons with disabilities are affected by immobility, cognitive and intellectual function, swallowing problems, tube-feeding, epilepsy, incontinence, and scoliosis. Other factors, not directly related to injury, are general health, degree of community integration, physical fitness and diet, pre-existing disease, family history, family education, employment status, household income, smoking, obesity, and alcohol and substance abuse ([Barnes 2010](#), pp. 4, 7–18, 21–29). Secondary conditions (such as bladder or kidney infections), inadequate use of preventive services (such as mammograms), and lower quality of care increase death risk ([Forman-Hoffman et al. 2015](#), pp. 352–54).

### 2.2. Death Causes

Concerning death causes, for persons with tetraplegia, these are urinary tract complications and respiratory complications, while for persons with paraplegia, these are septicemia,

suicide, heart disease, and cancer. Pulmonary embolism (DeVivo et al. 1999, p. 1411), renal failure (DeVivo and Stover 1995, p. 297), and pneumonia and influenza (Middleton et al. 2012, p. 7) are potential causes of death for both categories.

Urinary tract complications and respiratory complications are common death causes for persons with tetraplegia, while septicaemia, suicide, heart disease, and cancer are common for persons with paraplegia. Pulmonary embolism (DeVivo et al. 1999, p. 1411), renal failure (DeVivo and Stover 1995, p. 297), and pneumonia and influenza (Middleton et al. 2012, p. 7) are potential causes of death for both categories, while disease complications and suicide are death causes for 50% of persons with multiple sclerosis (Golla et al. 2016, pp. 275–76).

### 2.3. Risk Factors

Depressive and anxiety disorders contribute to a decrement in health for persons with chronic diseases (Moussavi et al. 2007, pp. 851–58) and perhaps to suicide (WHO 2017, p. 4). Depression can contribute to a decreased level of energy and self-care, which, in turn, may lead to an increase in life-threatening medical conditions. Persons with disabilities and chronic illnesses appear with depressive symptoms 2–10-times more often compared to the general population. That is because they experience specific life conditions that increase the risk of depression. Mobility difficulties may cause frustration, embarrassment, anger, or feeling of helplessness. Accessibility problems, social barriers, employment difficulties, poor health, and not obvious disabilities may also lead to depression (Thompson 2002, pp. 3, 7, 15–19). Female, older, unemployed, and inactive persons with disabilities in Greece and better-educated persons with disabilities in the UK have even more increased possibilities for depressive symptoms. Nevertheless, married persons with disabilities in Greece and older persons with disabilities in the UK have decreased depressive symptoms (Rotarou and Sakellariou 2018, pp. 371–72). The standard recommendations for the treatment of depression include counselling, antidepressant medications, and, in case of severe depression, hospitalization and/or electroconvulsive therapy. Talking to family members; sharing experiences with friends, peers, and persons with similar disabilities; participation in support groups, family support networks, or local advocacy groups; physical exercise; stress management; and volunteering are also suggested (Thompson 2002, pp. 21, 25–28). From a policy point of view, mental health care needs, reduction of income inequalities, and improvement of transportation must be priorities (Rotarou and Sakellariou 2018, pp. 10, 17).

Concerning lower levels of energy and self-care as a result of depression, it is important to mention Prosen, who observed that persons with disabilities with severe limitations are more motivated to participate in rehabilitation activities than persons with fewer limitations (Prosen 1965, pp. 1261–65). Depression is also related to weight balance. Low levels of depression, among other things, can contribute to better weight control and weight loss maintenance (Wing and Phelan 2005).

Access to health services is limited in Canada (Crawford 2005, pp. 10, 13), and in the US, persons with disabilities are less able to utilize the available health services (Pharr and Bungum 2012, p. 105). In the EU, a considerably high number of people reported an unmet need for health care due to cost, travel distance, or waiting time (Expert Panel on Effective Ways of Investing in Health 2016, p. 4). In the UK, difficulties in access concerning long waiting lists, distance or transportation problems, cost of medical examination or treatment, cost of prescribed medicines, and needs for mental health care due to cost have been discovered (Sakellariou and Rotarou 2017, p. 5). Concerning Greece, the situation is worse (Rotarou and Sakellariou 2017, pp. 4, 10).

### 2.4. Orthodox Traditional Approach

From an Orthodox spiritual point of view, Clement of Alexandria supports that the Lord divided body and soul and advises that the soul that is educated by God has to govern the body (Clement of Alexandria *Paedagogus* 1984, in Bougatsos, V I, n. 111, p. 112). Body and soul are supposed to cooperate because the Lord cures both of them of passions,

equally. On the other hand, treatment of the body aims to cultivate the soul (Clement of Alexandria *Stromata* 1984, Bougatsos, V I, n. 145 and 146, p. 119). Therefore, according to the Greek-Orthodox tradition, it is fundamental that there is an interaction between body and soul.

There is evidence that Orthodox believers with physical disabilities, who experience love in Christ, humility, and a lack of envy have lower levels of depression and loneliness than people with less faith, love, and humility (Papanikolaou 2011, pp. 68–69). Carers and family members are supposed to cope with persons with dementia, emphasizing that ‘at the heart of the Orthodox faith is the lively spirit of the Trinitarian God, whose love enfolds us all, regardless of age or physical or mental capacity’ (Hudson 2010, p. 152).

Arrogance, lack of respect, and undervaluing another human being are incompatible with the spirit of Christianity. Human beings are icons of God, and we have to treat them as we should treat God. Orthodox Christians have to perceive persons with disabilities, just as any other human being, for whom the Son of God has been incarnated, crucified, and resurrected. As Jesus received the humanity of all humankind in His nature, every human being can participate equally in the body of the Church (Papanikolaou 2021, p. 86).

Love in Christ is the fundamental criterion for treating other people and concerns the ‘connection with composure, elimination of passions, the offer of forbearance, freezing of burning anger, promotion of humility, and the strike of pride’ (Nilus Abbot 1865b, *Treatise to the Monk Eulogius*. PG 79, 1124C). Envy, praise, pride, insolence, indecency (Chrysostom 1980, pp. 378–80, 382, 388), quarrel, anger, evil thoughts, malevolence, gloat, and malice (Chrysostom 1978a, pp. 384, 388–94) are opposites of love. Its positive characteristics are to live for other people’s sake; pray for them (Chrysostom 1967c, pp. 307–8); be forgiving (Chrysostom 1967a, *On Paul, Homily 3rd*, p. 33), unfeigned, and motivated by the fear of God, including those who harm us in the group of our best friends (Chrysostom, *On censure, Homily I*, pp. 624–32); share other people’s pain; lament for others’ sins (Chrysostom 1967b, II, pp. 236–37); and do to others what we want others to do to us (Mt. 22:40; Mt. 7:12). Moral education and development of the soul (Chrysostom 1987, pp. 638–39), sacrifice or/and self-sacrifice (Chrysostom 1978b, p. 86), defence of the slandered, hope, and patience (Chrysostom 1980, p. 394) are also included.

*Landlessness and almsgiving* concern knowledge of the passions of philargyria and cupidity and their harmful results, understanding of the vanity of material goods, the effort to be satisfied with everything one possesses and not struggle for additional material goods, stable faith in God as an opponent to insecurity, and indifference for material goods, because of focusing on spiritual ones. Almsgiving, in addition, is characterized by sharing goods with those in need, in a proportion of the possibility, compassion, mercy, and charity (Larchet 2008, V2, 243–46 and 250–53). Gregory of Nyssa adds *solidarity, benevolence, and altruism*. He emphasizes that those who give are blessed and mentions that charity fills the gaps between well-being and body disease, wealth and poverty, and glory and infamously, among other things. Practicing benevolence can result in the elimination of envy, hate, and other evil attitudes, which will be replaced by peace, justice, and friendship (Gregory of Nyssa 1989, pp. 211–17). *Conceit in Lord* is a relevant virtue that can be analysed in considering virtues as gifts from God, not seeking approval from other people, focusing on asceticism, and cultivating virtues to participate in divine glory. *A-kenodoxia* concerns indifference for human glory and seeking humiliation. *Intuition and diakrisis* (Larchet 2008, V2, pp. 372–84) are also essential virtues, while Ermas adds *devoutness* and *patience* as virtues that contribute to happiness. Moreover, he mentions that we have to console the psychologically tired and do whatever is possible to make others feel comfortable (Ermas, *Shepherd* 1984, 5, 8–11, in Bougatsos, VI, n. 54, pp. 93–94).

Cultivating virtues seems to be a complicated and dynamic procedure that places the person in relation with other human beings, rather than a list of pieces of advice that supports an individual to improve him/herself. In many cases of everyday life, persons with disabilities are weak, while others are in a power position. Furthermore, taking care of

the weak may lead to salvation ([Clement of Rome \*Corinthians A'\* 1984](#), 38, 1–2, in Bougatsos, VI, pp. 83–84).

### 3. Materials and Methods

There is plenty of data concerning health issues, death causes, and factors that affect death causes. However, it seems that there is a lack of a theory that could integrate medical, mental, social, and spiritual data concerning personal and social experiences, exploring patterns of interaction and taking into account the viewpoint of the Greek-Orthodox tradition. Such a theory may provide a picture of the overall health of wheelchair users. Given that personal and social experiences are the project's core, the theory is generated inductively. Therefore, the qualitative research strategy seems most appropriate for this stage ([Bryman 2004](#), pp. 20, 56).

#### 3.1. Data Collection

The medical data were collected via medical history and laboratory tests. The results of the exams were given to the participants, and medical advice was provided where it was necessary. In the medical history and laboratory tests, the physician Athanasios Gianasimidis, with the support of Prof. Apostolos Chatzitoliou, explored the potential existence of active death causes and risk factors, as they have been described above. Furthermore, our physicians searched for potential stroke, peripheral vascular disease, blood hypertension, diabetes, dyslipidemia, gastrointestinal disease, liver disease, endocrinopathy, thyroid disease, arthritis-autoimmune disease, osteoporosis, and bone fracture.

The social data were collected via phenomenological interviews, which were semi-structured and aimed to offer the participants' perspectives ([Kvale and Brinkmann 2009](#), p. 27). The duration of the interview was between 30 and 60 min. We explored several topics concerning feelings and experiences towards health, social and care services, social relations, education, employment, family, Church, and God. Moreover, habits and conditions related to health and general attitudes towards life and emotional topics were included.

Additionally, the questionnaire measured and compared indicators concerning the concepts of depression, social anxiety, loneliness, faith in God, love in Christ, fasting, Eucharist, humility, and lack of envy. The validity and reliability of the questionnaire have been tested and improved ([Papanikolaou 2011](#), pp. 54–64). It has to be clarified that the questionnaire does not offer a detailed diagnosis or specific measurement, since this is not its aim, but it gives a general idea of the concepts, which can be combined with the data from the other sources and offer suggestions for intervention. Moreover, from the questionnaire, we attracted data concerning the age group, gender, religion, family, economic and social status, education level, type of disability, age of disability onset, and ways of coping with the disability.

The sample was purposive ([Bryman 2004](#), pp. 333–34) and therefore consisted of a small number of cases. More specifically, it included 27 wheelchair users who died prematurely and 13 wheelchair users who volunteered to participate in the project. All of them were living in the community. Given that the sample was homogeneous, that the participants were eager to share their feelings and experiences, and that the categories had been adequately developed, the number of interviewees was considered sufficient. ([Charmaz 2014](#), pp. 106–7). Participants were recruited from Thessaloniki and the surrounding area. However, the geographical area itself was not the focus of the research ([Bryman 2004](#), pp. 304–5, 50).

#### 3.2. Data Analysis and Theory Building

The primary source of data was the interviews of the participants, since they could depict their personal and social experiences. The analysis of the interviews followed the steps of coding, categorizing, and qualitative content analysis ([Kvale and Brinkmann 2009](#), pp. 203, 323). The codes depicted the feelings and experiences of the interviewees, and after the initial line-by-line coding, specific focused codes were selected, which were



most relevant to the research questions (Charmaz 2014, pp. 124, 138). The codes were included in categories concerning psychological, family and social, and spiritual factors and subcategories including positive and negative feelings and experiences. The data were processed by a qualitative content analysis, which can make the voices of the participants heard and is suitable for processing interviews, articles, and medical records (Lindgren et al. 2020). In the analysis, we applied the twofold approach of treating the respondents' answers, that is, (a) to record and identify facts and events of the participants' everyday life, which may be related to their health, as external reality, and (b) to explore experiences and feelings as internal experiences. The analysis of the data derived from the tool questionnaire contributed to the triangulation of the project. Given that the data were mainly qualitative and the interviews reflected the participants' personal experiences, this part was developed inductively and was consistent with the procedures of grounded theory development (Charmaz 2014, p. 15). The medical data and the data collected by the tool questionnaire improved the formulation of the grounded theory (Wimpenny and Gass 2000, p. 1491).

### 3.3. Limitations

Most of the interviewees were socially included to an adequate degree. Although asked, some well-known wheelchair users with fewer opportunities refused to participate in the project. Therefore, the generalizability may have to be re-examined with a quantitative research project. However, the patterns of interaction of the concepts seemed to be clear.

## 4. Results

In this part, we present data related to wheelchair users who died prematurely and wheelchair users of middle age. We explore demographic characteristics, death causes, and risk factors that affect death causes. Furthermore, we present data concerning social and spiritual factors that may affect the death causes and risk factors.

### 4.1. Demographic Characteristics

Concerning wheelchair users who died prematurely, most of them were men (85.2%), and some were women (14.8%). Twenty-three men and four women died at an average of 48.22 years of age, while the average of the general population in Greece during the same period fell in the age group of 75–79, and the average of premature deaths (15–74 years of age) fell in the age group of 60–64 (Hellenic Statistical Authority n.d.). Paraplegics and tetraplegics because of SCI were 74.0% of the sample, as appears in Table 1. Exploring the family status, we discovered that 40.8% of them were married, 48.1% were unmarried, and 11.1% were divorced. Concerning employment status, 87% were unemployed or retired, 8.7% were employees in the public sector, and 4.3% were students. The deaths concerning disability types appear in Table 1.

**Table 1.** Deaths and disability type.

Disability Type	Nr	%
Spinal Cord Injury/Paraplegia	13	48.1
Spina Cord Injury/Tetraplegia	7	25.9
Spina Bifida	2	7.4
Polyomyelitis	2	7.4
Multiple Sclerosis	1	3.7
Duchenne Muscular Dystrophy	1	3.7
Amputee	1	3.7
Total	27	100.0

### 4.2. Death Causes and Risk Factors

The death causes of those who died prematurely are presented in Table 2. What is important to note is that sudden deaths because of pathological causes were the majority (55.3%), while not sudden deaths were 29.6% of the sample. In the interviewees of the

project, we discovered that one of them had experienced a pulmonary embolism. and another one made an unsuccessful suicide attempt.

**Table 2.** Death causes.

Death Cause	Nr	%
Heart Attack	13	48.1
Cancer	4	14.8
Substance Overdose	2	7.4
Stroke	2	7.4
Car Accident	2	7.4
Covid	2	7.4
Kidney Infection	1	3.7
Duchenne MD	1	3.7
Total	27	100.0

The average age of the interviewees was 50.17 years. Concerning risk factors related to physical health, eight out of 13 of the wheelchair users that participated in the project were overweight or obese. Some of them admitted *eating for pleasure*. Concerning physical inactivity, 12 out of 13 participants reported that they were physically inactive, although four of them used to be very active in sports in the past. Four of them were paralympic winners. Concerning the other three, as soon as their ‘career’ in sports ended, they stopped physical activity. Six out of 13 of the participants in the project smoked regularly. Moreover, we identified bladder and kidney infections, scoliosis, incontinence, and health problems related to family history. Furthermore, our team found thyroid disease, arthritis, blood hypertension, dyslipidemia, gastrointestinal disease, liver disease, diabetes, pressure sores, and bipolar disorder in the sample.

#### 4.3. Psychological Factors

Concerning risk factors and contributors related to psychological health, given the dominant presence of depression and social isolation in the literature, we explored them via a questionnaire that assessed indicators concerning depression, loneliness, and social anxiety on a scale from 1 to 5.

Here, we have to mention that one of those who died prematurely because of a heart attack suffered from severe depression. This person lived in a village and had given up all activity. Attempts to be involved in a sports club had no result. During the period close to the end of his life, he had almost no social activity and did not accept any psychological support. Gradually he developed pressure ulcers, lost weight, and his organs collapsed until he died at age 32. Another interviewee, Martha, had been diagnosed with bipolar disorder and became paraplegic because of an unsuccessful suicide attempt. Her answers to the questionnaire did not seem to show high levels of depression, but it is important to note that she was receiving strong anti-depressant medication. The results concerning depression, social anxiety, and loneliness are presented in Table 3.

Another important finding is that Maria, Polymnia, and Magdalena, who have severe tetraplegia, showed the lowest scores in depression. Maria and Polymnia also scored very low in loneliness, with Polymnia scoring impressively low in social anxiety as well. These scores had to be combined, however, with the results concerning their relations with their social environment. What is important to note is that no one of the participants scored high in all three variables.

**Table 3.** Depression, Loneliness, and Social Anxiety.

Case	Depression	Loneliness	Social Anxiety
01—Maria	1.25	1.45	2.33
02—Panagiotis	2.88	2.09	3
03—Georgia	3	2.73	2.83
05—Gregory	3	2.73	2.83
06—Martha	2.75	3.09	2.67
07—Polymnia	1.38	1.45	1.17
09—Magdalena	2.13	2.91	3
11—Simos	2.5	2.09	3.5
12—Ekaterina	2.86	3	3.67
Average	2.42	2.39	2.78

#### 4.4. Family and Social Factors

Concerning families of orientation, *harmonious feelings* were reported by Maria and Polymnia. Maria ‘feels lucky’ for the *family of orientation support*, while Polymnia experienced ‘love, respect, and support.’ On the other hand, other participants reported *disharmonious feelings* for their families of orientation. Martha, who developed paraplegia because of an unsuccessful suicide attempt, reported that she experienced a *lack of family of orientation support*, since her parents were divorced. Now, in her forties, she is obliged to live with her mother, feeling *oppressed* and receiving strong medication for bipolar disorder. Perhaps this is the reason why her score in depression was not very high. Concerning other disharmonious experiences, overprotection, neglect, and exploitation were reported. In the category, ‘sad feelings,’ misery, and confusion in specific situations were added.

Concerning families of procreation, among those who died prematurely in our sample, 59.2% were unmarried and divorced. Regarding the interviewees, seven of them were married, engaged, or divorced. Martha, after she became paraplegic, experienced *marriage collapse*, which is a disharmonious experience. Maria and Polymnia were two of the three unmarried and unengaged ladies. They *wished to have a family of procreation*, and they were making efforts for this, enjoying the support of their parents. All six married or engaged participants reported harmonious experiences and feelings of their families of procreation. Georgia reported feelings of *satisfaction* and *pride* for her *family of procreation*, including it in the most significant achievements in her entire life. Charalambos added the concept of *optimism about the future* because of the success of his marriage. It is worth noting that the spiritual dimension reported by three married participants. *Gratitude to God* for support to create and maintain their families of procreation was also a concept mentioned.

Concerning social relations, participants reported the harmonious experience of *acceptance by society* and *support from the social environment*, with those who made specific achievements, such as being paralympic winners, enjoying *increased respect*. However, a couple of interviewees reported disharmonious experiences, mentioning a *solid claim* to enjoy entertainment activities. Public transportation and other public facilities’ *inaccessibility* contributed to worsening the situation. Concerning harmonious feelings, on the one hand, *satisfaction from the social environment* was reported. Those who enjoyed more respect because of their achievements felt more satisfied and proud. On the other hand, disharmonious feelings concerning *unfulfilled needs for social contacts* were reported. The ways that participants managed their social relations seemed to differ. Polymnia supported that *optimism towards life* contributed to social acceptance. Magdalena explained that she developed *indifference to managing problematic social situations*, while Panagiotis preferred *conflict and fighting* when necessary.

Education seemed to play an essential role in the way people perceived and managed everyday life situations. The category of disharmonious experiences included *discrimination* by the university staff and other students reported by Maria, who struggled to explain that she could study and have a full social life, irrespective of her tetraplegia. Panagiotis reported that inaccessibility was the reason for *high-school dropout*, while Magdalena explained that



she experienced *rejection* from primary school, missing the opportunity to develop her skills. However, she mentioned a harmonious experience when, during adulthood, she had the opportunity to *attend high school* lessons, cultivating her intelligence. Polymnia mentioned harmonious experiences from a mainstream high school, perhaps because of the maturity of classmates. She also reported happy memories from the university, attributing discrimination to ignorance and a lack of education. Concerning feelings towards education, participants reported *traumas because of rejection* and *enthusiasm* when allowed to participate in education. Moreover, *pride because of developing problem-solving competencies* was reported. In addition, as it is well known, education contributed to *developing a career perspective*.

Employment was another crucial sector of life and a dominant part of a person's identity. Unfortunately, not all persons with disabilities enjoy this opportunity, as Magdalena complained, mentioning unemployment as a disharmonious experience. *Unsuccessful attempts to find a job seemed to be a common experience*. A successful career in the open market was the best practice mentioned by George. However, it is essential to note that he held many jobs as a youngster, and this helped him to develop commitment, cleverness, a love of work, and a love of learning. These characteristics motivated him to study and create his own business.

Healthcare was a very crucial sector in our project. Although a considerable improvement has been achieved recently, our participants still identified healthcare premises and equipment *inaccessibility* as a problem. Communication also was crucial in the relationship between health professionals and patients. Participants in the project reported what is mentioned in the bibliography as a 'denial of symptoms.' A noticeable case is that of Polymnia, who described, deliberately and politely, specific symptoms concerning arthritis, but the physician attributed them to obesity. Polymnia felt *undervalued, embarrassed, and angry* for the additional reason that the physician avoided physical contact during the examination, expressing *contemptuous behaviour*. Another physician prescribed the wrong medication for epilepsy, although she described utterly different symptoms. This wrong medication resulted in (fortunately temporary) serious side effects. Disabilities include a variety of complicated conditions. Participants reported that health professionals examined and treated them, although they *lacked expertise*. The story of Magdalena was tragic. As a baby, she had symptoms of difficulty moving. Her parents took her to the paediatrician and then to the hospital. After one year of the first visit to the doctor, they received the diagnosis of polio. The worst thing was that they were told that this happened because there was no vaccine, although the Sabin vaccine was available at least a decade before! Magdalena also described a long-lasting adventure with examinations and treatments with no result. Although she had her first diagnosis in 1975, she still wanted to forget the memories of the hospitals and health professionals. Nevertheless, participants mentioned health professionals who treated health problems successfully and prescribed appropriate therapies. Concerning harmonious experiences, Panagiotis was satisfied with the health services, because the medical centre in his area offered *healthcare delivery services* to patients. Polymnia added that other physicians made *comprehensive symptom assessments*, treated her politely, proceeded to special exams, and gave appropriate therapy. What impressed her was that these health professionals expressed love for their science and humanness for the other person. This could be characterized as *humane health condition awareness*. The development of a personal relationship, understanding, and rapport is essential. More than one of the participants mentioned that they would like *permanent physicians*, familiar with their medical history, to treat them accordingly.

#### 4.5. Spiritual Factors

Most of the participants stated that they were *faithful but not religious*. Specifically, 10 reported that they go to church 1–6 times per year, and three reported 1–4 times per month. On the other hand, all participants declared that they had a *strong faith* and preferred to pray individually. It was supported that *prayer is applied to improve mood*. Confession and Holy Communion were mentioned as supportive. The wish for *being pleasing to God*

was a new concept added as supportive, as well. Freedom, as regards the relation with God, was mentioned, since religious fundamentalism and oppressive behaviour were disliked. The concept of *divine intervention* in everyday life was also added. *Spiritual support* was a result of the cultivation of a relationship with God, which, in turn, resulted in feelings of calm and relaxation. The *participation in parish activities* was enjoyable. *Accepting disability* was perceived as part of God's plan. Loving and *being guided by God* seemed to contribute to expressing love to other people. Moreover, *grace to God* for protecting and offering life, although with a disability, was mentioned. In the Table 4 the scores in spiritually variables as they have been depicted in the questionnaire, seem to support the findings of the interviews, since they do not show extreme beliefs or behavior tendencies.

**Table 4.** Spirituality scores.

Case	Faith in God	Love in Christ	Fasting	Eucharist	Humility	Lack of Envy
01—Maria	3.42	2.98	3.17	4.58	3.89	4.64
02—Panagiotis	3.8	3.46	3.11	3.62	3.5	4.55
03—Georgia	3.88	3	3	3.2	3.5	4.2
05—Gregory	3.88	3.02	3.02	3.2	3.52	4.18
06—Martha	2.85	2.64	3.05	2.96	3.39	3.27
07—Polymnia	3.42	2.95	2.82	3.54	3.45	3.55
09—Magdalena	3.08	2.54	2.41	3	3.66	3.64
11—Simos	3.47	3.18	3.05	2.87	3.31	3.82
12—Ekaterina	3.31	2.85	2.95	2.41	3.55	3.82
Average	3.45	2.98	2.94	3.07	3.5	4.03

## 5. Discussion

In this part, we explore patterns of interaction between death causes, risk factors, and factors that affect health. The results above confirmed previous research projects, in that persons with disabilities are subjected to high rates of premature mortality (Forman-Hoffman et al. 2015, p. 346). Paraplegics and tetraplegics, because of SCI, are included in the first place of premature mortality (Middleton et al. 2012, p. 9). Moreover, persons with SCI at a young age have a lower life expectancy compared to those injured during adulthood (Shavelle et al. 2007, p. 553). However, female, employed, and married wheelchair users seemed to present lower rates of premature mortality. Other factors, not directly related to injury, were general health, degree of community integration, physical fitness and diet, pre-existing disease, family history/education, employment status, household income, smoking, obesity, and alcohol and substance abuse (Barnes 2010, pp. 4, 7–18, 21–29). Secondary conditions (such as bladder or kidney infections), insufficient use of preventative services (such as mammograms), and lower quality of care increase death risk (Forman-Hoffman et al. 2015, pp. 352–54).

### 5.1. Death Causes

In our sample, the most common cause of premature death was a heart attack. Given that these deaths are sudden, some of them may have been caused by acute myocardial infarction (Abed et al. 2015, p. 183) and others by cardiovascular disease (Myers et al. 2007, pp. 142–52), while others were by pulmonary embolism due to thrombosis, which may appear as syncope in persons with SCI (Chen et al. 1995). One of the interviewees survived a pulmonary embolism and experienced severe health problems for a long time. From a strictly medical point of view, sudden deaths because of heart attack (Corianò and Tona 2022), as well as because of pulmonary embolism (Flanders and Zwerneman 2014), can be prevented by implementing specific strategies.

The second death cause in the sample was cancer, with esophageal carcinoma three-times more frequent compared to urinary tract cancer. Persons with SCI or polio are vulnerable to upper gastrointestinal problems, including esophageal cancer. A healthy way of life and reducing smoking, gastroesophageal reflux, and overeating are suggested. In

parallel, increasing fiber foods consumption contributes to prevention (Ohry and Zeilig 2011). Concerning urinary tract cancer, the urinary system of persons with SCI is vulnerable, and its malfunction may be a cause of death (Barber and Cross 1952, pp. 494–502). Specifically, urinary bladder cancer is more common for people with SCI than in the general population (Böthig et al. 2021, p. 29). Prevention can be achieved by protecting against overdistension or infection of the bladder (Morris 1974, p. 933).

Less frequent seemed to be the death causes of substance overdose, stroke, car accidents, and COVID, since they all shared a percentage of 7.4%. It was obvious that high-risk driving and substance abuse increased the possibilities of premature death.

Kidney infection appeared in our sample in a percentage of 3.7%. This finding seems compatible with DeVivo et al. (1999, p. 1411), DeVivo and Stover (1995, p. 297), and Middleton et al. (2012, p. 7).

### 5.2. Risk Factors

Concerning risk factors related to physical health, obesity was very common in our sample. It is a well-known risk factor for acute myocardial infarction (Abed et al. 2015, p. 183) and, therefore, is related to high morbidity and mortality (Pi-Sunyer 2002) in the general population. High rates of obesity for wheelchair users are attributed to biological factors such as body and metabolism changes, muscle atrophy, and physical inactivity (Liou et al. 2005, pp. 321–31). ‘Excessive intake of high energy food’ is also a cause of obesity, and it is usual in persons with disabilities and can result in several chronic diseases, such as ‘diabetes mellitus type 2, dyslipidemia, coronary heart disease, gallbladder disease, osteoarthritis, sleep apnea, certain types of cancers, and also psychosocial problems’ (Piechota et al. 2005, pp. 155–61). Consequently, specific attention to this problem seems necessary (Froehlich-Grobe and Lollar 2011, pp. 541–45). Weight loss is a pursuit and possible result of a specific treatment. However, maintaining a low weight after weight loss is more complicated than it seems, since several biological, behavioural, and environmental factors are involved (Hall and Kahan 2018). Long-term weight loss needs a routine with physical activity, a diet low in calories and fat, eating breakfast, checking weight regularly, keeping an eating routine, avoiding ‘slips’ in daily routine, and perhaps a triggering event (Wing and Phelan 2005, pp. 222–25). An internal wish, based on internal locus of control, is also crucial (Papalazarou n.d.).

The second most common risk factor identified in the participants was physical inactivity. Benefits from physical activities, such as increased muscle strength and level of physical fitness, for persons with neuromuscular disabilities are well-known. Persons with orthopaedic disabilities reported that physical activity results in an increase in physical fitness, improvement of mental health, gaining a sense of personal accomplishment, improvement of the cardiovascular system, and feelings of well-being and flexibility. Persons with multiple conditions reported improvement in flexibility, physical endurance, and increase in stamina. However, participants of all three categories reported that exercise was hard work and tired them (Malone et al. 2012, pp. 254–60). As it is obvious so far, there was a trend to assimilate physical activity with exercise. Nevertheless, physical activity is not only exercise, sports, and recreation, but it includes any type of body movement, such as everyday activities (Kansas State University, Department of Kinesiology n.d.) and (why not) employment. An employed person lives a more active lifestyle. However, accessibility problems seem to negatively affect involvement in activities (Rimmer et al. 2004, pp. 419–25; Calder and Mulligan 2014, pp. 26–35).

### 5.3. Factors Related to Psychological Health

In this field, depression seemed to be the most crucial. However, participants who filled out the questionnaire did not seem to present high scores. Nevertheless, the case of the young paraplegic who died because of severe depression during the 90s remains vivid. This person had lost any motives, and the decline of his health confirms Thompson, in that depression can lead to an increase in life-threatening medical conditions. Maria,

Polymnia, and Magdalena have severe tetraplegia and appeared with the lowest scores in depression. This seems consistent with Prosen, in that persons with severe limitations are more motivated to participate in rehabilitation activities.

*The participants in our project did not demonstrate high levels of loneliness. However, in the interviews, most of them reported that they faced social rejection in entertainment, education, and employment. Social rejection can lead to social isolation. Furthermore, there is evidence that 'social isolation and loneliness are associated with increased risk of acute myocardial infarction and stroke' (Hakulinen et al. 2018, pp. 1536–42).*

Concerning social anxiety, the particular participants appeared to have low scores, perhaps because they successfully managed their social lives. There is evidence that social anxiety is associated with loneliness and victimization, at least in typical adolescents (Acquah et al. 2016). Moreover, social isolation, loneliness, and health are associated (Owens and Sirois 2019, p. 3).

#### 5.4. Family and Social Factors

Concerning families of orientation, most of the participants reported harmonious and disharmonious feelings and experiences. However, there is evidence that negative experiences and perceptions, such as hostility, parental fighting, and violence, may lead to feelings of fear and suffering (Papanikolaou 2019, p. 135).

Concerning families of procreation, in those who died prematurely in our sample, 59.2% were unmarried and divorced. The collapse of marriage after the onset of a disability is a possible experience with negative implications, as was clear in the case of Martha. On the other hand, the successful creation of a family is a positive experience for persons with disabilities. Even an affair can contribute to an increase in love of oneself and self-confidence (Papanikolaou 2019, p. 161).

Most of the interviewees reported harmonious social relations, and therefore, they were not socially isolated. However, there is evidence that many persons with disabilities experience rejection, which may lead to social isolation. Different ways of managing these relations depend on each person's personality and are developed to find a place in society. (Papanikolaou 2019, pp. 168, 170–71). Magdalena was a characteristic case as mentioned above.

It was obvious in the results that education is an opportunity for social inclusion and a foundation for a successful career. This is consistent with already known research (Papanikolaou 2019, p. 179).

Concerning employment, the results showed that a considerably high percentage of those who died prematurely were retired or unemployed (85.2%). There is evidence that employment has therapeutic effects and seems to be a crucial factor for social inclusion (Papanikolaou 2019, p. 197).

Concerning services, accessibility seems to be the most common problem. Access to healthcare premises and medical equipment is difficult, confirming Crawford (2005, pp. 10, 13). Denial of symptoms, wrong diagnoses, and ineffective treatments were added. Contemptuous behaviour from the side of physicians led to feelings of undervaluation, embarrassment, and anger.

#### 5.5. Spiritual Factors

Obesity, which has been identified as a crucial risk factor for the premature death of wheelchair users, from an Orthodox viewpoint, usually resulted from *gastrimargy*, which is a passion and a serious sin. 'Gastrimargy' can be defined as the willingness to seek qualitative and delicious delicacies, to desire carefully prepared delicacies, to enjoy eating large quantities of food, to desire things that exceed the needs of the body for food, to eat for pleasure, and not to eat glorifying God. It is related to unhealthy dietary habits and pleasure. The extravagance of this pleasure leads to obesity. To treat this passion, the Fathers of the Church suggest the cultivation of *temperance in eating*. This concept can be analysed in eating glorifying God, adherence to God, and eating just what is needed for survival and good

health. Other dimensions of this concept are avoiding seeking sensual pleasure in eating, avoiding eating hyperbolically, balancing between hate and pleasure of eating, fasting, and denying seeking pleasant delicacies. Moreover, hating seeking pleasure, disdaining enjoyment of eating, stopping to eat and drink before satiety, balancing the needs of the particular body and spirit, reading Scriptures, having memory of death, being devout, and praying are crucial dimensions of the concept (Larchet 2008, V2, pp. 200–8, 243–48). From a more practical point of view, fasting is an effective way to keep a healthy diet, but also to obtain a spiritual balance (Hayden n.d.). In this discussion, it becomes obvious that at the core of the meaning of gastrimargy exist the ideas of personal responsibility and personal intervention, since the fight against it is based on spiritual efforts and personal actions. This can be related to the ‘internal wish’ and ‘internal locus of control’ mentioned above.

Inactivity, according to the ancient Greek tradition, is similar to idleness, which ‘is the mother of all evil.’ This idea has been formulated by the Apostle Paul (Paul Eph. 1974, 4:28), analysed by the Fathers of the Church (Basil the Great, *The Hexaemeron* 1984, 5, PG 29, 157 D, in Bougatsos, VI, n. 385, p. 193), and accomplished in monasticism (The Ascetic Experience n.d.). Idleness is characterized by indolence (Nilus Abbot 1865a, *To Agathon Monk*, PG 79, 937D), confusion of mind (Isidoros Pilousiotis 1860, *Epistles, Book A’*, 298, PG 78, 356C), and dependence on others (Theodoritos of Cyrus 1864, *On the twelve prophets, A’ Thess*, d 12, PG 82, 645C). Inactivity leads to negative financial, emotional, and spiritual consequences (Basil the Great, *The Hexaemeron* 1984, 8, PG 29, 185 B). On the other hand, employment contributes to the cultivation of virtue (Basil the Great, *Ascetic Rules* 1984, 4,3 PG 31, 1352 A, Bougatsos. VI, n. 536, p. 249). By work, humans serve each other with love, following the example of Jesus (Origen, *On Psalms* 1984, B 11, PG 12, 1113 D, Bougatsos, vol. I, n. 230, p. 141) and serving not their personal needs, but other humans (Basil the Great, *Longer Rules* 1984, 42,1 PG 31, 1024 D, Bougatsos, vol. I, n. 492, p. 234). Anthony the Great suggests prayer during work (Athanasios the Great, *Life of Anthony* 1984, 3, in Bougatsos, VI, n.334, pp. 171–72), adding the spiritual dimension. Continuous work, day and night, and offering rather than receiving, results in avoiding being caught by the demon of laziness and developing demonic desires (Evagrius Ponticus, *Hypotyposis or Principles of the Monastic Life* 1984, 8, in Bougatsos, VI, n.918, p. 357). From a social point of view, those who can work must help those in need, and this is a social benefit (Basil the Great, *‘Opoi (Hθικ)*, [Morals] 1984, 48,7, in Bougatsos, VI, n.462, p. 222).

*Acedia* is a complicated situation, similar to depression. It can be analysed as a vague and generalized lack of satisfaction, lack of mood to do anything, lack of meaning in anything, lack of expecting anything, and lack of ability to concentrate. The acedious persons suffer when they stay in one place and are alone, seek contact with other people, and are involved in relations without meaning. In addition, they abhor the place of residence and seek other places and are confused in activities, specifically at work, feeling job dissatisfaction. They are unwilling to pray, have a confusing lack of satisfaction, are unwilling to be engaged in activities, and seek to escape the acedious situation, being engaged in useless activities. The presuppositions for an Orthodox spiritual treatment of *acedia* include willingness to eradicate it from the soul, awareness, identification of the problem, and willingness to fight against it. The treatment itself starts from the quest (and cultivation) of the person’s relation with him/herself and not with others. The person has to seek and cultivate limited and selective relations/discussions; be patient in the fight; practice prayer, hope, repentance, mourning, devoutness, and memory of death; help people live right; avoid sin; apply God’s commands; and trust God. In addition, the person has to fear God, be involved in a handicraft (employment), and practice psalms and heart prayer (Larchet 2008, op.cit., V2, 302–18).

So far, it became clear that one of the main problems of persons with disabilities concerns how other people treat them. Therefore, if we cultivate virtues, our relations will be improved. Specific virtues seem to facilitate the inclusion of persons with disabilities. In addition, cultivating virtues contributes to the improvement of human beings and better relationships with others and God.



## 6. Conclusions

The findings confirm previous projects, in that wheelchair users have significantly higher premature mortality compared to the general population. Although the sample was small, it seemed to contribute to the clarification of the frequency of death causes, with heart attack and cancer representing 62.9% of the total premature deaths. Oesophageal carcinoma appeared as a surprisingly frequent cause of death. The most vulnerable wheelchair users in these causes were persons with spinal cord injury.

It is well known that the main risk factors that seem to increase the possibility of an acute myocardial infarction are physical inactivity and obesity. However, inaccessibility, unemployment, retirement, and depression are additional factors that affect wheelchair users, decreasing their activity level. From a spiritual point of view, inactivity is similar to idleness, which, however, includes the potential of personal intervention. Obesity, on the other hand, is the result of gastrimargy and can be managed by temperance in eating and fasting. Regular medical surveillance and an increase in involvement in activities are effective ways to prevent thrombosis, which is the main risk factor for pulmonary embolism. The participants did not appear with high levels of depression, which is also a common risk factor. However, if it is perceived as similar to acedia, it can be managed by spiritual practices, according to Christian literature.

Social isolation is an identified risk factor for acute myocardial infarction, can be caused by rejection and marginalization, and may lead to loneliness. Accessibility problems in healthcare and other basic facilities and communication problems between persons with disabilities and health professionals, such as denial of symptoms, that have been reported by the participants, contribute to marginalization. Ways of spiritual management include the cultivation of virtues by the persons themselves, their families, and their social environments.

It is not surprising that spiritual practices contribute to ontological harmony (balance of the body, soul, and spirit). Divine intervention is perceived as contributing to improving difficult situations. The development of a relationship with God results in spiritual support. This support results in feelings of calm and relaxation. From a practical point of view, participation in parish activities may contribute to a more harmonious family and social life.

In general, regular medical screening and surveillance by expertized health professionals are necessary. This results in effective prevention of medical conditions and health promotion. The collaboration between persons themselves, health and social care professionals, and clerics seems to be the ideal framework for effective support of the overall health of wheelchair users.

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