

# Health promotion programs for the development of daily living skills in individuals with neurodevelopmental disorders

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## Abstract

The aim of this research is to highlight the health and wellness promotion programs that address the daily lives of people with special educational needs. Health promotion is an approach used to improve the health and quality of life of every person. For many years now, a lot of countries globally have taken advantage of economic and social resources to provide health promoting services in various contexts such as school and community-based facilities. In this review, these frameworks are mentioned, by giving emphasis to health promotion in the community and the enhancement of independent living skills. For people with disabilities, health promotion and the independent living movement has started its activity in recent years, which was a reason chosen to focus on these people, as the literature is limited but the needs in this field vary. The aim of the project is to explore the needs of young people and adults with neurodevelopmental disorders and following a holistic approach, to propose solutions with the various health promotion programs, which may enhance life skills and promote the health, independence and quality of life of people with disabilities.

**Keywords:** 'Health Promotion; Intervention; Intellectual Disability; ASD; Community; Health Promotion Programs; Young People; Adults; Independent Living; Life Skills; Disabled; Family; Caregivers'

## 1. Introduction

According to the World Health Organization, health promotion is the process that provides the facility – enabling – to individuals and communities of people to increase control over the factors that affect their health and thus improve their health (WHO, 2021). It can cause changes in understanding or thinking, it can affect or clarify values, it can bring about changes in beliefs or attitudes and facilitate the acquisition of skills, it can bring about changes in behavior and lifestyle (Tones and Tilford, 1994). Health promotion is therefore a resource and not a goal for everyday life, the concept of which includes not only healthy lifestyle but also well-being.

The objectives of a health promotion program for people with disabilities are to reduce secondary health conditions such as obesity and hypertension, in order to maintain autonomy in functionality, provide an opportunity for recreation and enjoyment, and, by reducing environmental barriers standing in good health, improve overall quality of life (Rimmer, 1999). Therefore, in order to achieve these objectives, greater emphasis should be placed on the development of community-based health promotion programs for people with disabilities (Rimmer, 1999).

The Community – based health promotion programs that mentioned in research, are considered effective in terms of improving health, reducing chronic diseases, improving mental health and improving health inequalities. Moreover, they help to unite the citizens of a society by creating the feeling of a group and of a community.

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In recent years, special attention has been paid to health risk factors, such as unhealthy diet, lack of physical activity and neglect of health care, which have led to the development of many health promotion programs aimed at reducing inequalities in people with special educational needs (Scott et al., 2016). Unfortunately, many young people with cognitive and developmental disorders, compared to typically growing young people, face secondary health problems mainly related to obesity (Rimmer et al., 2010). It is speculated that one of the reasons for this, which is a major problem, is the lack of information on health promotion issues for people with disabilities. The lack of knowledge and educational training on the implementation of health promotion in people with intellectual disabilities may prevent nursing staff from implementing the right intervention, for example by omitting the proposal of physical exercise in cases of obesity (Lauria & Waldrop, 2020). Carers of people with disabilities point out that promoting a healthy lifestyle should be an essential requirement for any employee who provides services, as they have the most important impact and absolute support on people with disabilities on a daily basis (Kuijken et al., 2018).

### **1.1. Independent living skills**

'Independent living skills' are the skills necessary for a person with disabilities to lead a full normal life without reliance on family members or support structures. Life skills, also defined as independent living skills, are a prerequisite for enhancing independent living and independence and are divided into four categories: a) daily living skills, b) community-related skills, c) social skills and d) professional skills (Dimitriadou, 2018).

The successful transition from addicted childhood to independent adult life requires the development of life skills. For most people adulthood has been linked to independence, this is not always the case for people with disabilities. Unfortunately many young people with disabilities are not ready to face the challenges in acquiring functional skills. As it has been shown that people with mental disabilities lack the skills needed to cope with the loneliness of independent living (Takamine, 1998, as reported by Dimitriadou, 2015). In addition, based on the literature, for most people with developmental and intellectual disabilities is quite difficult to live independently. Therefore, a prerequisite of independent living is the acquisition of skills so that the individual can become autonomous. At this point, we should mention that family support and proper guidance is significant, by providing appropriate training through interventions and programs by professionals to learn daily living skills.

In addition, to develop autonomy in functionality, the daily life skills that contribute to the independence of people with special educational needs are necessary. Research reports that many people with disabilities face difficulties and barriers in independent living, mainly in money management skills and parenting skills (Raudeliunaite & Gudžinskienė, 2017). These difficulties fall into psychosomatic stability and everyday life and integrated community life and independence, such as living with a family or assisted housing, and concerns about the safety of the home when they live alone (Ghanouni et al., 2021). However, the challenges and concerns as set out below in the research can be addressed by applying appropriate methods, through the use of assistive technology and educational strategies and training of caregivers with appropriate educational programs.

In the last decade, programs for the transition of young people with disabilities to adulthood have been implemented in many countries and are considered the most appropriate programs for learning life skills. They are educational programs for young people with disabilities which aim to develop and strengthen the independent living skills that are necessary in adulthood. Therefore, transition programs are characterized as independent living programs. They are formed in community-based residential facilities (CBRF), community roofs/residences or in post-secondary education and mostly lasts from weeks up to two years.

Programs developed in community or academic residences, the Residential Immersive Life Skills (RILS), have a duration of 1 to 3 weeks. It is aimed at adolescents with disabilities, mainly kinetic, aged 14 to 21 years. The program includes the official curriculum and a combination of structured team training, individual support and opportunities and experiential learning experiences, so that youths can strengthen their self-confidence in activities and acquire the necessary skills that will lead them to daily independent life (King et al., 2021).

Although the independent living movement is improving worldwide, unfortunately, in Greece there are few structures and programs available for independent living because these initiatives are largely not supported by the state but by private initiatives and associations of parents of people with disabilities (Dimitriadou, 2018). The reasons for the failure of independent living programs, as highlighted by parents and teachers in Dimitriadou's survey (2018), are the lack of infrastructure, insufficient and inappropriate professional training of staff working in specific structures.

## **2. Methodology**

### **2.1. The purpose of the review**

The aim of this review is to highlight the health and wellness promotion programs that address the daily lives of people with special educational needs. Health promotion is an approach used to improve the health and quality of life of every person. The study, focusing on youth and adults with intellectual and developmental disabilities, aims to explore the needs of this population and, following a holistic approach, to propose solutions with the various health promotion programs, which may enhance life skills and promote the health, independence and quality of life of people with disabilities. The review was based on the following research questions:

What is the purpose of health and wellness promotion programs of people with special educational needs and in the development of which specific daily living skills using which methods do these programs focus on.

What is the role of the family/caregivers of people with special educational needs in the development of daily living skills through health and wellness promotion programs and in which age group as well as context do these programs focus on.

What is the use of new technologies in the development of daily living skills through health promotion and wellness programs for people with special educational needs.

### **2.2. Research Procedures**

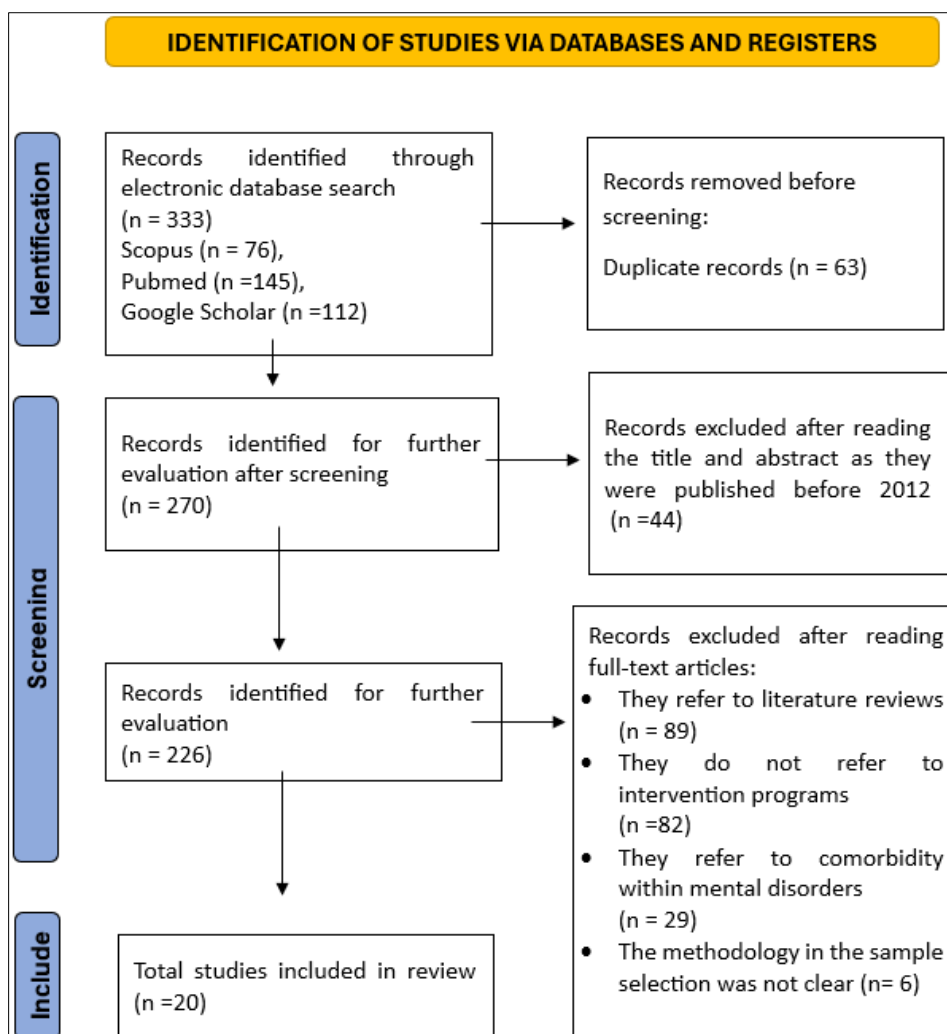
The research methodology of present study is based on the systematic literature review of articles derived from reputable scientific journals, whose main language is English. International experimental studies on the subject were studied. The first phase involved finding and collecting articles by means of an online search of the Google Scholar, Scopus, and Pubmed databases (Table 1). The key dates for identifying the studies were between 2012-2024. The search terms (key words) of the articles were as follows:

'health promotion' AND 'intervention program' OR 'Community-Based Programs' AND 'daily life skills' OR 'independent skills' AND 'special educational needs' AND 'intellectual disability' AND 'Autism Spectrum Disorder (ASD)' AND 'Family' AND 'Caregivers'

### **2.3. Inclusion and exclusion criteria**

The study had to meet the following criteria to be included in the review a) The key dates for the identification of the studies should be between 2011-2024 and related to field research with educational content done in community or school environments b) also the review should include research referred to the role of the family or caregivers in general c) as for the sample of individuals who participated in the surveys should refer to diagnosed adolescents and adults aged 14-74, who meet the criteria of a diagnosed developmental disorder. Studies were excluded if they a) refer to reviews, conference announcements, book chapters and editorials b) refer to articles with educational intervention programs and development of cognitive and school skills c) research people who had comorbidity with mental disorders.

During the survey, only emphasis was given to people with special educational needs facing mental and developmental disorders, without mental disorders, and to the age groups of mainly adolescents and adults from 14 years of age and older, while people of the third age were excluded from the review. Only one study with an upper age of 74 years was included. The reason chosen to focus on adolescents and adults was the state of health, physical alertness, functionality, nutritional conditions and independent living of these people. In particular, a large number of research articles were studied, of which after reading the summary or the whole article were rejected as they did not belong to the above category.



**Table 1** Identification of Studies via Databases and Registers

### 3. Results and discussion

The findings based on the systematic literature review consist of (20) surveys and are divided into two categories and one subcategory. The first category presents (8) health and wellness promotion programs aimed at improving health through fitness and nutrition. While in the second category (10) programs are presented that promote health and daily living by enhancing life skills. Also included in the subcategory are (2) programs with parents' perceptions about daily living skills. Overall, all research studies with a holistic approach promote the health and independence of people with disabilities to have a better quality of life.

The Healthy Living program was developed in 2012 in Australia by three health organizations and is one of the few community programs to promote health of an educational nature, suitable for encouraging a healthy, physical, social and mental lifestyle for people with intellectual disabilities. In particular, the health program is referred in the study of An et al. (2018) involving six (6) adults with intellectual disability with an average of age 45.5 years, four (4) supportive members of the club and two (2) program presenters, a social worker and one responsible for oral health. The results, as stated by the people with intellectual disabilities and their supporters, show positive health benefits for people with intellectual disabilities and most participants felt satisfied and wanted to continue to offer their services to enhance the program.

A survey conducted in the USA by Lauria & Waldrop. (2020), evaluated the feasibility and satisfaction of the Health U curriculum, a health promotion program for acquiring healthy eating habits, based on the community by a registered nurse for people with intellectual disabilities and Down syndrome. The participants were six (6) people aged 15-24. According to the results, it was found that the program had a positive effect on the health of people with disabilities and that most caregivers/parents, although not attending weekly sessions, were very satisfied with their experience with

the program. In conclusion, the program was very effective in promoting and cultivating healthy behaviors and nutritional education as well as encouraging physical exercise.

The investigation by Bergström et al. (2013) held in Sweden, aims to explore the factors that burden or facilitate educational health promotion. The sample consisted of 83 people, aged 20 to 63 years, divided into groups of 16 people. According to the evaluation of the program, the participants had the opportunity to enrich their medical knowledge through group activities and without the presence of their caregivers could enhance their autonomy. However, the research lacked the social and natural environment to support in a satisfactory practical level the new daily life skills as the program emphasized health education with the adoption of medical knowledge and pedagogical strategies and not so much in the process of practical empowerment.

The study of Marks et al. (2013), held in the USA, examined the effectiveness of a community health promotion program taught by staff to adults with intellectual disabilities to improve their health. The survey involves 34 professional staff members and 67 people with intellectual disabilities aged 30 to 64. According to the results, adults in the intervention group note significant improvements in health status, knowledge, self-efficacy and fitness. In conclusion, the Health Matters program implemented within a community framework is considered effective in improving the health of adults with intellectual disabilities.

The investigation of Son et al. (2016), implemented in South Korea, aims to confirm, through a physical exercise program, the critical importance of managing obesity and to provide the necessary information for effective management of obesity of people with intellectual disabilities living in supported living roofs. Participants consist of nine (9) overweight or obese people with intellectual disability aged 18-64. According to the results it was found that there was a significant decrease in body weight, body composition (basal metabolism, body fat, abdominal fat) and waist circumference. In addition, there was an improvement in physical fitness in terms of muscle strength and flexibility.

Dunsky & Barak (2024), assessed in a community village in Israel, the effects of a long-term physical exercise program on the quality of life and physical condition of adult people with ASD. The program involved 34 adults from 20 to 60 years of age. According to the results, physical activity improved the aerobic fitness and offered well-being to the participants.

In the USA, Savage et al. (2022) studied the feasibility of a 12-week supported self-management intervention to increase physical activity in adults with ASD and intellectual disability. According to the results of the pilot study, the participants in the intervention group, after 12 weeks, had a significantly higher number of steps and lost more weight compared to the control group. In conclusion, it was found that the use of technology significantly improved commitment with physical activity as well as self-management strategies with the support of the coach.

The research paper of Vergara (2017) in the USA aims to assess the effects of the digital game "Exergame" on physical activities and the level of intensity during implementation in adults with intellectual disabilities compared to traditional activities. The sample consists of four (4) adults with intellectual disabilities and provocative behavior, aged 20 to 51 years. The findings show a variety of effects while on the whole there was a positive effect on the two participants. At the same time, it was stated that exergames may stimulate significant levels of moderate and intense physical activity. In conclusion, although participants were few and were not satisfied to the same extent, the exergame method is considered to be acceptable for increasing well-being and physical activity.

In this section the results for the development and enhancement of independent living skills will be presented. The survey of Tomchek et al. (2017) refers to a case study of a 17-year-old teenager with ASD in which ergotherapeutic intervention was used to improve functional skills, organizational and time management skills, morning grooming skills and pre-professional skills, with the aim of participating in culinary club courses. According to the results, the student's participation in the cooking club increased by 65% and after the occupational therapy intervention he could prepare a meal and also do an internship in the food industry. In conclusion, the personalized intervention with three sessions a month, without specifying the start and end period, strengthened all the functional and working skills that will provide the student with a more independent and quality life.

The researchers Dollar et al. (2012) in the USA examined whether the simultaneous inducement approach can help in learning daily living and leisure skills for people with severe disabilities. In particular, the sample included two people with intellectual disabilities aged 24 and 62 living with host families. According to the results, the two participants learned three different skills in 12-28 sessions and retained each skill for a few weeks after the conquest. In conclusion, the simultaneous induction as a form-by-form in their home environment proved to be an effective method for learning certain skills that will subsequently help the independence of individuals.

The Behavior Skills Training method (BST) is presented in the USA and in the study of Roberts et al. (2021) to teach young people with ASD to acquire the necessary skills that will prepare them for an interview. The participants in the survey are three people with developmental disorders aged 19 to 20 who attend an adult transition program to develop professional and social skills. The results of the study showed for the two (2) participants that they reached 100% of the targets in 10 and 16 sessions, while for the third it took a little more time as he asked for written instructions, but also managed to reach the desired result. The findings support the BST method as an appropriate and effective way of teaching to learn interview skills.

The Surviving and Thriving in the Real World (STRW) method is a group educational program for learning daily living skills in young people with high-functioning ASD. Duncan et al. (2018) applied this method in their research in the USA, with the aim of enhancing daily living skills. The participants were seven (7) adolescents with ASD aged 14-18, and their (adolescents) parents. Results after treatment and over a period of 6 months, show that adolescents showed significant improvements in their daily life skills, but parents also stressed that the treatment was very useful as they were taught many strategies to help their children generalize their skills in a domestic and community environment.

In a Dubberly study (2012) with the questionnaire procedure, students were given the opportunity to express their views and assess the effectiveness of the Community-Based Instruction programs (CBI) mainly applied in the USA to train basic life skills in the transition of intellectually disabled adolescents to adulthood. The study involved a total of 36 students with intellectual disabilities who had taken part in a similar program during school attendance. The findings show a sense of program satisfaction and students perceive the program as an activity that helps them cultivate self-esteem and strengthen self-determination. In conclusion, students consider that the Community-Based Instruction program gives positive results in terms of planning a transition to adulthood and the acquisition of functional living skills.

The Cameron et al. (2022) survey conducted in Australia in 84 adults with ASD and with concomitant intellectual disability and non-OSD, aimed to explore the social and community criteria of these people mainly in the areas of daily employment, education and regulated living conditions. According to the results, the daily programs and activities that most attended are group trips to local cafes and activity centers, handicraft and gardening activities with support from paid professionals.

In the Stierle et al. (2023) survey held in the USA refers to the combination of supporting technology with the video modeling method (video prompting). In particular, the research aims to investigate the effectiveness of a TaskAnalysisLIFE application on iPhone mobile phone, which will help three young adults with intellectual disabilities cook three, multi-step, recipes. The sample consists of three (3) intellectually disabled adults aged 20-21 years. Although there were concerns for the safety of the participants, as they were unaware of the cooking procedures, prompting videos as an educational method, gave participants the opportunity to self-motivate and successfully complete and safely their daily skills. It is worth mentioning that by enhancing their self-confidence and autonomy, by using the inducement, they reduced their dependence on those around them (Stierle et al., 2023).

An investigation of Cheung et al. (2022) in China, evaluated the effectiveness of education of daily living skills in adults with intellectual disabilities using virtual reality. In total the sample consisted of 145 people with an average age of 41.4 years. The findings showed that despite the lack of a significant difference between real and virtual kitchens, there was a significant improvement in the pre-cooking process, the ability to clean and memory. Although virtual reality training provided a safe and harmless environment, it did not prove better in training daily tasks than traditional training rather only in enhancing mnemonic function.

In another survey conducted by O'Neill et al. (2019) in the UK and Ireland, through an anonymous online questionnaire, carers, professionals, educators and friends of disabled people, specifically with ASD and ID, were interviewed in order to gain information about the experiences that disabled people have gained from assistive technology, focusing on communication through smart mobile applications and tablets (smartphone/tablet). The questionnaires completed were 136, with 96 of them valid. Based on the research, stakeholders confirmed that these individuals need support throughout daily life and it would be legitimate to improve the above needs and then to emphasize the assisted technology which is stressed that has greatly improved the quality of life of these individuals and that compared to other studies has more than doubled its use in recent years.

In a survey conducted by Tasse et al. (2020) in Ohio of United States, the use of remote technology and its contribution to independent living of people with intellectual and developmental disorders were examined. The sample consisted of 56 disabled adults aged 21-74 years, who either now use or used remote support in the past. According to the results of the study, most users responded positively to remote technology support by noting their safety and independence as

two main benefits. In addition, the use of remote support was helpful in reminding the medicines as well as in safety in cases of danger such as fire or theft.

Finally, two studies on the perceptions of the family for the development of everyday life skills will be presented. Dimitriadou (2018) conducted a primary survey took place in Greece in 2018 to explore the views of parents, teachers and the disabled, aged 18 to 30, on independent living, with the ultimate goal of implementing integrated Independent Living programs in the community. The survey involved 30 teachers, 20 parents and 35 people with intellectual disabilities. According to the results, it is understood by the research that appropriate government aid and support is needed both in the areas of infrastructure and teacher training, in vocational rehabilitation and the creation of appropriate learning facilities, to meet the needs of these people by facilitating them in the labor market as well as in independent life.

King and her colleagues conducted a survey in 2021 in Canada to present parents' perceptions of "Residential Immersive Life Skills" (RILS), namely youth transition programs that enhance the life skills of young people with disabilities (King et al., 2021). The sample consists of ten (10) parents of children with disabilities aged 16-21. The results show that Residential Immersive Life Skills (RILS) programs, in the eyes of parents, offer several benefits for this age group, related to everyday life skills such as money management and digital accounts skills, cooking skills and washing clothes, but also with attitudes, preparing young people with disabilities for transition to adult roles, envisioning a future with easier adaptation to new challenges.

### **3.1. The role of digital technologies to improve daily living skills**

In this chapter we underline the importance of all digital technologies in the education domain for healthy living and for daily skills. ICTs support education for everyone, give new methods for efficient teachers training, improve the knowledge retention, encourage collaboration, improve transparency, create learner-centered approaches, invent new teaching methods, and accelerate the knowledge acquisition. Moreover, provide new tools for knowledge representation and endorse the education activities and methods via virtualization, mobilization, artificial intelligence, and through new learning environments- worlds. More specifically in healthy living and for daily skills training ICTs are very productive and successful, facilitate and improve the assessment, the intervention and the educational procedures via Mobiles which brings educational activities everywhere [31-33] and through various ICTs applications which are the core supporters of education [34-47]. The exploitation of AI, STEM & ROBOTICS raise educational procedures into new levels of adaptability, innovation and performance [48-51], while games [52-53] transform education in a multisensory, very friendly and enjoyable interaction. Additionally, the adoption, enhancement and combination of ICTs with theories and models of metacognition, mindfulness, meditation and emotional intelligence cultivation [54-64] brings the mental abilities to the core of the education procedures and policies, and as a result accelerate and improve even more the educational practices and results, especially in healthy living and daily skills education, treating domain and its practices like training, assessment and intervention.

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## **4. Conclusion**

The purpose of this systematic review was to highlight the health and wellness promotion programs that address the daily lives of people with special educational needs, focusing on young people and adults with mental and developmental disorders. The aim was therefore to explore the needs of this population and, following a holistic approach, to propose solutions with the various health promotion programs, which may enhance life skills and promote the health, independence and quality of life of people with disabilities.

Our findings show that the programs implemented aimed to improve fitness and well-being, promote healthy eating behaviors and enhance the quality of life of the person with disabilities. Promoting good health behaviors by activating physical activity improves quality of life and treats secondary problems such as obesity.

The methods used were mainly educational approach based on teaching healthy nutrition, physical activity exercises, assistive technology with mobile phone applications and digital play.

In programs that promote health and daily living by enhancing life skills, methods such as occupational therapy, visual support, educational approach, simultaneous video prompting, video modeling, assistive technology with mobile and remote support applications, virtual reality were used.

Improvements were mainly observed in the morning grooming routine (hygiene, shaving, clothing), self-care, sorting clothes (washing/drying, spreading/folding), housekeeping, cooking process, learning technological devices, employment and interview skills, money management, time management and organization skills.

Life skills programs were carried out in a school and family environment, a home environment with host families, in sheltered apartments, independent living homes, supported living roofs, school facilities and post-secondary education facilities. Overall, most of the facilities where the projects were implemented were owned by the community.

The age of the survey participants was mainly young up to 14 to 62 years old. Young people were mainly in the transition programs to adulthood. And only in a safety and security program of the house with remote supporting technology Smart Home, the sample was from 21 to 74 years old. From all the programs presented in only two studies, the participation of the family is observed.

The perceptions of parents in Greece focus mainly on the lack of appropriate infrastructure, minimum opportunities for social inclusion, inappropriate learning facilities and insufficient training of teachers/carers on issues of independent living. While in Canada, in contrast to the barriers described in Greece, parents describe the benefits that the emerging educational "home" transition programs Residential Immersive Life Skills (RILS) have in adulthood. Families argue that on the one hand they act as assistants in exploiting their potential and strengthening their self-confidence, and on the other hand they create significant changes in the life skills of young people with disabilities, their attitudes and behaviors, preparing young people with disabilities for transition to adult roles by envisioning a future with easier adaptation to new challenges.

Emphasis was given mainly to the method of supportive technology that contributes to the strengthening or maintenance of many skills that stimulate the character of each person and give the choice to experience with dignity a more independent and quality life. Adults with intellectual disabilities use assistive technology to complement their caregivers' care. Video modeling (video modeling & video prompting) is applied in several studies as an educational method for teaching everyday life skills. Most of the surveys included technology aids, the results of which were largely satisfactory, highlighting the possibility of individualized intervention and accessibility from the general population due to low cost (except Smart Home).

We conclude that health inequalities, serious health problems, various difficulties as well as daily wrong health behaviors such as an unhealthy diet and poor skills can have a negative impact on health and hinder the daily independent and more quality life of people with special educational needs. However, with the implementation of appropriate health programs, such as those mentioned in the survey, all the above difficulties can be improved. Undoubtedly, the family network is an important guide for independent and autonomous living in everyday adult life. The informal form of support that the disabled person receives from his family becomes particularly important as it enhances the self-confidence of the individual, raises his morale by reducing the feeling of supply weakness and loneliness (Dimitriadou & Kartasidou, 2014). The same adults with disabilities emphasize that the family is the dominant system of emotional, educational, financial and emergency support (Pavlidou & Kartasidou, 2017). Therefore, as valuable as family support is, to reduce health inequalities, improve the system of care and thus health and achieve the learning of appropriate skills that will offer functionality to autonomy, it is necessary to establish appropriate state infrastructure, financial support and modification of the education system.

The results of the research highlight the need for new research, which will have a larger sample of individuals and will be trained in a variety of skills. As the literature was quite limited in these areas, not all findings can be generalized. However, the research overview seems to me to be sufficient to provide solutions to many issues. I also think it would be useful for those interested in the fields of health, education, special education, technology, as the methods mentioned approach all of the above areas. On technology, much emphasis was placed as many programs used in both categories, a little more on skills, were with digital technology.

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## **Compliance with ethical standards**

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*Disclosure of conflict of interest*

The Authors proclaim no conflict of interest.

*Statement of ethical approval*

The Author had taken the approval of the appropriate committee of ethical and deontology on research

*Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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