Social support, resilience and subjective well-being in portuguese athletes with disabilities

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CHAVE MÓVEL

Dedicatory

To all people with disabilities, especially those I have come across on this journey of adapted sports.

"Among so many difficulties experienced, between what is a right and what is real life, the path is made by closing the distance between this dichotomy."

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Resumo

Esta tese de doutoramento tem como objetivo estudar, numa abordagem integrada, as seguintes variáveis: suporte social, resiliência e bem-estar subjetivo em atletas com deficiência que praticam desporto de competição adaptado. Consiste num projeto de investigação dividido em três estudos.

O primeiro estudo apresenta uma revisão sistemática que analisa a influência do desporto adaptado no bem-estar, resiliência e suporte social de indivíduos com deficiência. O estudo envolveu a pesquisa em várias bases de dados e a análise de 27 estudos relevantes. Conclui-se que os desportos adaptados têm um impacto positivo no bem-estar, na resiliência e no suporte social das pessoas com deficiência, contribuindo para o seu desenvolvimento pessoal, qualidade de vida e integração na sociedade.

O segundo estudo centra-se na caraterização sociodemográfica e psicossocial da equipa paralímpica portuguesa que participou nos Jogos Paralímpicos de Tóquio 2020. O estudo revela altos níveis de satisfação com a vida, afeto positivo, resiliência e suporte social entre estes atletas, destacando a importância de compreender as características dos atletas paralímpicos para melhor compreender o estado do desporto paralímpico em Portugal.

O terceiro estudo investiga a relação entre diferentes fontes de suporte social (pais, treinador, amigo e melhor amigo), resiliência e afetos positivos e negativos em atletas portugueses com deficiência. Os resultados indicam que o apoio social de várias fontes tem um efeito direto na resiliência e nos afetos. Adicionalmente, o estudo encontra uma associação positiva entre a resiliência e o afeto positivo e uma associação negativa entre a resiliência e o afeto negativo, enfatizando a importância da resiliência para o bem-estar dos atletas com deficiência.

Esta investigação reforça a nossa convicção da importância do desporto adaptado e do seu papel na melhoria do bem-estar e da resiliência das pessoas com deficiência, bem como na promoção do suporte social. Estas conclusões são fundamentais enquanto racional para defender o desporto adaptado. Devem ser tidas em conta pelos decisores políticos e por diversas organizações na elaboração de políticas educativas e desportivas, pois ilustram a influência positiva do desporto adaptado na melhoria do

bem-estar, da resiliência e dos recursos de apoio social das pessoas com deficiência. Isto, por sua vez, contribui para o seu crescimento pessoal, qualidade de vida e integração na sociedade.

Palavras-chave

Desporto adaptado;suporte social;resiliência;bem-estar subjetivo

Abstract

This doctoral thesis aims to study the following variables in an integrated approach: social support, resilience, and subjective well-being in athletes with disabilities who practise adapted competitive sports. It consists of a research project divided into three studies.

The first study presents a systematic review that examines the influence of adapted sports on the well-being, resilience, and social support of people with disabilities. Several databases were searched and 27 relevant studies were analysed. It concludes that adapted sport has a positive impact on the well-being, resilience, and social support of people with disabilities, contributing to their personal development, quality of life, and integration into society.

The second study focuses on a socio-demographic and psychosocial characterisation of the Portuguese Paralympic Team participating in the Tokyo 2020 Paralympic Games. The study reveals high levels of life satisfaction, positive affect, resilience, and social support among these athletes, highlighting the importance of understanding the characteristics of Paralympic athletes to better understand the state of Paralympic sport in Portugal.

The third study examines the relationship between different sources of social support (parents, coaches, friends, and best friends), resilience, and positive and negative affect in Portuguese athletes with disabilities. Results indicate that social support from multiple sources has a direct effect on resilience and affect. In addition, the study found a positive association between resilience and positive affect, and a negative association between resilience and negative affect, highlighting the importance of resilience for the well-being of athletes with disabilities.

This research reinforces our belief in the importance of adapted sport and its role in improving the well-being and resilience of people with disabilities, as well as promoting social support. These conclusions seem fundamental to us as a rationale for defending and develop adapted sports. These should be taken into account by policy makers and various organisations when developing education and sport policies, as they illustrate the positive influence of adapted sport in improving the well-being, resilience and social support resources of people with disabilities. This, in turn, contributes to their personal development, quality of life and integration into society.

Keywords

Adapted sport;social support;resilience;subjective well-being

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List of Acronyms and Abbreviations

BRS	Brief Resilience Scale
CPP	Comité Paralímpico de Portugal
CRPD	Convention on the Rights of Persons with Disabilities
EUFAPA	European Federation of Adapted Physical Activity
ICIDH	International Classification of Impairment, Disabilities and Handicaps
ICDID	International Classification of Disabilities, Incapacities and Disadvantages
ISSF	International School Sports Federation
PANAS	The Positive and Negative Affect Schedule
PCP	Paralympic Committee of Portugal
SWLS	Satisfaction with Life Scale
WHO	World Health Organisation

Chapter 1 – Introduction

1.1 A brief overview of the concept of disability

The study of people with disabilities and their needs, abilities, difficulties and limitations implies a change of attitude towards the difference, accepting the individuality of each person. Researchers in the social and health sciences have studied the condition of disability from a social perspective. The condition of the disabled person cannot be analysed only from a medical point of view, the social point of view is essential in determining their capacity. People are disabled by the conditions of society and not by their bodies (Bampi et al., 2017). UNICEF (2017) adds: "Disability is caused by the way society is organized and not by a person's impairment".

Disability is complex, dynamic, multidimensional and open to question (WHO, 2011). Due to the contextual difficulties in defining the concept of disability, the World Health Organization (WHO) has produced international classifications that aim to represent consensus models that standardise language across health systems (Saraiva et al., 2013). One of WHO's main tasks is to produce International Health Classifications (ICFs), which aim to standardise consensus models that provide a system for codifying health information and use a standardised common language that enables communication about health and health care around the world (WHO, 2001). WHO has published an International Classification of Impairments, Disabilities and Handicaps (ICIDH) (Kleijn-de Vrankrijker et al., 1989). This classification has resulted in a manual that distinguishes three essential, distinct and independent concepts - impairment, disability and handicap - each of which relates in a linear way to a different experience resulting from the condition. Thus, impairment is any loss or abnormality of an anatomical, physiological or psychological structure or function; disability is any limitation or lack of ability to perform an activity, resulting from the consequences of the impairment on the performance of activities; handicap is the disadvantage resulting from an impairment that limits or prevents the achievement of a normal life, depending on age, sex, social and cultural factors (Kleijn-de Vrankrijker et al., 1989).

In May 2001, the 54th WHO Assembly adopted the new classification system - the International Classification of Functioning, Disability and Health (ICF). In this new conceptualisation, disability results from the interaction between health problems and

contextual (environmental and personal) factors. For this purpose, the classification divides human functionality problems into three interrelated areas: changes in body structures and functions, limitations and restrictions on participation (WHO, 2001).

For children with disabilities to become aware, civilised and responsible adults, they must have equal access to the mainstream resources that enable them to feel included in all aspects of society (Laskowski, 2012). The development of education systems to meet the diverse special needs of people with disabilities has been guaranteed since the Salamanca Declaration resulting from the World Conference on Special Needs Education in 1994 (UNESCO, 1994). The Convention on the Rights of Persons with Disabilities (United Nations, 2006) emerged later, with the general need to reaffirm universal principles of dignity, wholeness, equality and non-discrimination, and to set out the general obligations of governments to integrate the civil, cultural, political, social and economic rights of persons with disabilities into their policies. The Convention on the Rights of Persons with Disabilities (United Nations, 2006: 16) states that governments should:

> "Ensure an inclusive education system at all levels and lifelong learning aimed at:
>
> a. The full development of human potential, sense of dignity and self-worth, and the strengthening of respect for human rights, fundamental freedoms and human diversity;
>
> b. The full development of the personality, talents and creativity, and mental and physical abilities of disabled people;
>
> c. To enable people with disabilities to participate effectively in a free society."

The concept of inclusion has increasingly become the focus of national and international education policies (Qi & Ha, 2012). Inclusive education has been widely studied in recent decades, and its definition reached consensus at the 48th session of the International Conference on Education in November 2008, where it was defined as a continuous process aimed at providing quality education for all, respecting the diversity and learning expectations of learners and communities. It aims to eliminate all forms of discrimination (UNESCO, 2009). In Portugal, disability is the second most cited ground for discrimination (ODDH, 2022).

One of the problems for people with disabilities is that they are not encouraged to live active lives from an early age and eventually lead sedentary lives with greater health problems and barriers to physical activity (Shapiro & Martin, 2010). This increases the

risk of developing secondary conditions related to the primary disability, such as social isolation, obesity, fatigue, among others (Laskowski, 2011). A healthy lifestyle is as important for health promotion, well-being and disease prevention for people without disabilities as it is for people with disabilities. Various authors highlight the importance of physical activity for people with disabilities (Medola, Busto, Marçal, Júnior & Dourado, 2011; Slater & Meade, 2004).

As mentioned above, people are disabled because of societal barriers, not necessarily because of their disability. These barriers can be physical barriers, but they can also be barriers caused by people's attitudes towards disability that devalue their abilities (United Nations, 2007).

1.2 Adapted sport

Sport has been approached as an influential resource in the development of young people in extremely important areas such as self-awareness, human relationships and the development of critical life skills (Conroy & Coatsworth, 2004). In this way, sport is recognised as an essential discipline in the education (MacNamara & Collins, 2013), either because of the representativeness of ethical codes, rules and behaviours that are universally structured, or because of the added value of the physical and psychological condition that physical activity provides.

Adapted sport corresponds to modified sport or sport created with the aim of meeting the needs of people with disabilities (Winnick & Porreta, 2017). The word "adapt" in relation to people with disabilities is intended to adapt or adjust by providing modifications to meet the needs of these people (Winnick & Porreta, 2017). Other terms are used to refer to this type of sport, but as Winnick & Porreta (2017) point out, the term adapted sport is more consistent than other terms used for the same purpose, such as adapted physical education and adapted physical activity, which focus their meaning on the modification itself rather than just the disability. In addition to being more theoretically consistent, the term adapted sport promotes the creation of sporting opportunities and encourages participation in a natural way and within the environment.

Adapted sport programmes are presented and developed in a variety of contexts. From therapeutic, school, recreational and leisure, physical activity and competitive sport programmes (Winnick & Porreta, 2017). Adapted Physical Activity is defined by the

European Federation of Adapted Physical Activity (EUFAPA, 2006) as a service derived from academic and professional studies that supports an attitude of acceptance of individual differences, advocates for increased access to active lifestyles and sport, and promotes innovative and collaborative services and empowering systems. Adapted physical activity includes, but is not limited to, physical education, sport, recreation and rehabilitation.

Participation in adapted sport promotes the exchange of experiences and allows disabled people, who would otherwise have more difficulties, to travel, visit other countries and meet people with similar characteristics and different ways of coping. Adapted sport is becoming increasingly important and with the growth in the number of participants, sports, competitions and new intervention methods, it is paramount to reinforce the need for doctors, physiotherapists and other health professionals to recognise the impact of organised sport for people with disabilities and encourage its practice in their populations (Sahlin & Lexell, 2015; Slater & Meade, 2004). Participation in physical activity and sport has a high potential to facilitate the inclusion of people with disabilities in the community (Laskowski, 2011). Athletic achievement increases confidence in physical ability, which is then transferred to life outside of sport. In fact, people with disabilities who try to lead an active lifestyle are more accepting of their disability than those who are inactive (Martin, 1996). Thus, sport as a tool to promote health, quality of life and social integration is beneficial for people with disabilities, namely in terms of self-confidence (Blauwet & Willick, 2012; Frank et al., 2013; Slater & Meade, 2004), life satisfaction, quality of life and self-esteem (Blauwet & Willick, 2012; Frank et al, 2013; Sahlin & Lexell, 2015; Sikorska & Gerc, 2018; Slater & Meade, 2004), and motivation to develop further (Blauwet & Willick, 2012; Frank et al, 2013).

Laskowski (2011) indicates that the main difficulties in adapted sport are: the lack of policies with detailed obligations and programmes for educational institutions to offer to students with disabilities; the lack of resources and training for those responsible for creating inclusive programmes; the absence of such inclusive physical activity-specific programmes in schools and universities; the lack of awareness among parents and young people with disabilities of their rights to access and participate in such programmes; and the persistently low advocacy and dissemination of the need for those responsible to develop such inclusive sport programmes.

In Portugal, the practice of sport by citizens with disabilities is valued as a measure of ability and rehabilitation of people with disabilities (Article 25, Law 38/2004, of 18 August

- Basic Law for the Prevention, Rehabilitation and Integration of People with Disabilities). Article 38 (Assembleia da República, 2004) adds that "it is the responsibility of the State to adopt the specific measures necessary to guarantee access for people with disabilities to the practice of sport and to the enjoyment of leisure activities, in particularly by creating appropriate structures and forms of social support." Thus, schools, institutions, clubs and other public and private organisations must create programmes adapted to people with disabilities.

In order to increase the accessibility of adapted sports for people with disabilities, the Portuguese Paralympic Committee has created the Sports Inclusion Map, which allows people to find sports clubs where they can practise by geographical area or discipline (CPP, s.d.). Adapted sports are becoming increasingly prevalent in Portugal, but the number of clubs is rather low in some districts of the country, such as Bragança, Castelo Branco, Portalegre and Vila Real.

1.3 Social support

In addition to identifying possible venues for sport, it is also important to understand the role that significant others can play in encouraging people with disabilities to participate in sport. Parents, friends, therapists, psychologists, teachers, volunteers and others who offer and enable disabled people to participate in sport are essential to their integration into sport (Winnick & Porreta, 2017).

Tajfel (1972) studied the concept of social identity, which he defined as a person's own knowledge about himself that makes him belong to certain social groups, including emotional and motivational attachment to the group. The basic premise of social identity is belonging to a social group, which in some way defines the person according to the norms of the group. By belonging to a group, people are influenced by the perceived norms and behaviours and replicate them in their attitudes and behaviours specific to the group context. Group norms are very important in the relationship between attitudes and behaviour, as they strengthen social relationships between group members. Attitudes act as stereotyped incentives according to group norms, either positive or negative, depending on what we identify with (Smith & Louis, 2008).

Social support is considered a positive influence in the context of sport for people with disabilities (Dunst & Trivette, 1990), several studies have been conducted in this area

(Aitchison et al., 2021; Atkinson & Martin, 2020; Cardoso, et al., 2018; Crawford et al., 2015; Giovanni, et al., 2016; Haslett et al., 2017; Machida et al., 2013; Mira et al., 2022; Monton et al., 2022; Powell & Myers, 2017; Swanson et al., 2008).

As with other concepts studied in psychology, social support has been defined and measured in a variety of ways, depending on the researcher's assessment (Rodriguez & Cohen, 1998; Stewart, 1993). Social support involves "an exchange of resources between at least two individuals that is perceived by the giver or receiver as intended to enhance the well-being of the receiver" (Shumaker & Brownell, 1984, p.13). A systematic review in this area (Beets et al., 2006) identified four categories of parental social support that fall into two distinct mechanisms, tangible and intangible. Tangible social support is divided into two categories: the instrumental category, which includes the financial and transport component, and the conditional category, which includes doing activity with and observation or supervision. The intangible social support mechanism is also divided into two categories, the motivational category, such as praise and encouragement, and the informational category, such as discussing benefits (Beets et al., 2006). Cobb (1976) defines social support as a condition that tells to the person that he/she is loved, cared for, valued and an integral part of a network of mutual obligations. The origin of social support can be considered informal, when it comes from family, friends, neighbours or social groups that accompany the person on a daily basis, or formal, when it comes from social institutions such as hospitals, doctors, social workers and other professionals (Dunst & Trivette, 1990). Social support refers to the psychological and material resources of a social network that help to cope with certain difficult situations. There are four dimensions of social support: emotional support, esteem support, informational support and material support (Rees & Freeman, 2009).

Strandbu et al. (2020) analysed the role of parents and close family members in the practice of sport and physical activity by young people and concluded that they influence them as role models that encourage them to practise (Smoll et al., 2011) by showing them the sport (MacPhail & Kirk, 2006), providing transport and the necessary equipment (Wheeler & Green, 2012) and showing a genuine interest in sport (Stefansen et al., 2018).

There is a consensus on the relationship between physical activity and parental social support, which has been extensively studied in children, adolescents and young people (Beets et al., 2010; Dowda et al., 2007; Edwardson & Gorely, 2010; Loucaides & Tsangaridou, 2017; Ornelas et al., 2007), as well as social support from friends (Loucaides & Tsangaridou, 2017; Rodriguez & Cohen, 1998; Stewart, 1993). Both sources of social

support have been shown to be important contributors to physical activity practice, but friends have a more impactful influence in this context (Cheng et al., 2014; Loucaides & Tsangaridou, 2017).

A study assessing the association between physical activity and social support from parents and friends in adolescents found that friends' physical activity levels were directly associated with adolescents' physical activity levels. Father's physical activity was associated with son's physical activity and mother's physical activity was associated with daughter's physical activity (Cheng et al., 2014).

Friendship is considered to be an important source of social support and influence for physical activity; those who engage in physical activity tend to make friends with those who engage in similar levels of physical activity and ultimately adopt behaviours, creating an interdependent relationship between physical activity practice and friendship networks (Hayes et al, 2013). Recent studies have analysed the social support provided by a best friend and its influence on physical activity in adolescents (Kandola et al., 2020; Martin, 2006; Martin & Smith, 2002; Monteiro et al., 2021; Stearns et al., 2018). In the context of sport, coaches have proven to be an essential source of social support, providing support and guidance that results in strong relationships (Gillham et al., 2015; Greendorfer, 2002; Lu et al., 2016; Mira et al., 2022; Mira et al., 2023; Sheridan et al., 2014). According to Greendorfer (2002), coaches play a key role in the experiences of the young people with whom they interact. Tayler & Bruner (2012) add that the coach has a great ability to foster the relationship with the group, thus reducing social exclusion within the group itself. Sheridan et al. (2014) found that the coach was identified as the person who primarily supported the young person in a sporting context. On the other hand, the combined effect of support from coaches, parents and friends has also been shown to be extremely important for athletes, including disabled athletes, and could contribute to increased levels of physical activity or sport participation by people with disabilities. Participation in physical activity and sport has a high potential to facilitate the inclusion of people with disabilities in the community (Laskowski, 2011).

Social support is considered a positive influence in the context of sport for people with disabilities (Dunst & Trivette, 1990). Social support for people with disabilities has been shown to be essential in promoting physical activity, particularly in sports settings (Javorina et al., 2020). This support involves an exchange of resources derived from key relationships, such as with the coach, parents and friends (Sheridan et al., 2014), resulting

in different manifestations of support. The type of support athletes receive throughout their careers should be adapted as their needs change (Rees & Freeman, 2009).

1.4 Resilience

Positive psychology approaches the development of psychological resilience as a way of promoting mental health (Kobau & Seligman, 2011; Seligman & Csikszentmihalyi, 2000). Over the past thirty years, many definitions have been proposed for the concept of resilience (Fletcher & Sarkar, 2012). According to Yunes (2003), the concept of resilience, which originated in the sciences of physics and engineering, aimed to introduce the notion of elasticity, considering a certain capacity for tension and compression. The resilience of a material represents the ability of the material to absorb deformation energy without suffering permanent deformation as a result. For Luthar et al. (2000) resilience is "a dynamic process in which individuals exhibit positive adaptation in the face of significant adversity or trauma" (p. 858). These authors recommend that resilience should be defined according to the specific context in which it manifests itself, as it depends on cultural context, development and history; it is a complex concept that requires care in its conceptual and operational definition (Masten & Obradovic, 2006). Fletcher and Sarkar (2012) describe resilience as "the role of mental processes and behaviours in promoting personal assets and protecting individuals from the potential negative effects of stressors" (p.675).

Resilience is explained by the metaphor of the oyster, which, when exposed to a foreign or unwanted substance inside its shell, such as a grain of sand, produces the mother-of-pearl substance that covers the grain of sand in layers to protect its body, which forms the pearl. For instance, only wounded oysters produce pearls (Pasqualotto, 2009). The way in which a person responds positively to adversity depends on the adversities to which they have been exposed and on their own adaptation to them (Morgan, Fletcher, & Sarkar, 2013).

Following the literature, the components of resilience are presented based on risk factors, protective factors, vulnerability factors and positive adaptation. Risk factors are any circumstance or event that may increase the difficulty of adapting to a situation of adversity (Luthar & Zelazo, 2003; Pasqualotto, 2009). Protective factors are those that, because of their characteristics, can contribute to positive responses to stress or adversity (Ryff & Singer, 2003; Pasqualotto, 2009). Vulnerability factors, in contrast to protective factors, are those that serve to intensify the effects of adversity. They can be the opposite of protective factors (Luthar & Zelazo, 2003). Finally, positive adaptation is an outcome

that is much better than would be expected given the presence of a particular risk factor (Luthar & Zelazo, 2003).

Research in this area has focused initially on children and more recently on adults (Ong et al., 2009; Fletcher & Sarkar, 2012), families and communities who have been exposed in some way to stressful situations such as the loss of a family member, terrorism, serious illness and natural disasters (Fletcher & Sarkar, 2012). More recently, it has been observed that the study of resilience has been widely carried out with parents and family members of people with disabilities. The positive findings, although not directly related to people with disabilities, are extremely important because these parents and family members are active participants in the process of education, rehabilitation and training of their children and family members with disabilities (Albuquerque et al., 2015; Halstead et al., 2018; Mohan & Kulkarni, 2018; Raja net al., 2018).

The increasing development and importance of the concept of resilience has led to a number of recent studies in the field of sport (e.g., Bejan & Tonita, 2014; Besharat, 2010; Cevada et al., 2012; Fletcher & Sarkar, 2012; Fletcher & Sarkar, 2013; Lu et al., 2016; Fontes & Brandão, 2013; Morgan et al., 2015; Neves et al., 2015; Nicholls et al., 2016; Sarkar & Fletcher, 2014a; Sarkar & Fletcher, 2014b).

Fletcher & Sarkar (2012) conducted research on resilience in Olympic champions. They supported the theory that psychological resilience is represented by a concept that includes stressors, cognitive appraisal, psychological factors such as positive personality, motivation, confidence, focus and social support, and facilitative responses. Olympic champions identified several stressors in their sporting careers, of varying frequency, intensity and duration, classified as competitive, organisational and personal. Exposure to stressors was identified as essential to the stress-resilience-performance relationship in Olympic champions. These authors believe that if the athletes had not experienced certain stressful situations, they would not have won their medals, meaning that there is a relationship between stressors, resilience and performance.

The psychological characteristics involved in the development of excellence appear to be acquired along a continuum of development (Spray & Wang, 2001). Holt and Dunn (2004) suggest that elite athletes do not differ from the general population in terms of their physical attributes. However, they have superior cognitive abilities and possess skills essential for success such as discipline, commitment, resilience and social support. These psychological characteristics enable them to cope better with anxiety, obstacles, self-

confidence, competitiveness, intrinsic motivation, concentration and goal setting and achievement (Gould et al. 2002; Vernacchia et al. 2000).

Sport participation by people with disabilities has also been shown to be associated with resilience, particularly access to social support, opportunities and meaningful social experiences, in people coping with traumatic injury (Machida et al., 2013). Athletes with disabilities demonstrate significant levels of resilience (Machida et al., 2013; Cardoso & Sacomori, 2014; Sikorska & Gerc, 2018). Cardoso & Sacomori (2014) found higher resilience in people with spinal cord injury and myelomeningocele (spina bifida) compared to the lower resilience observed in people with cerebral palsy. This finding may be explained by the functionality present in each disability. Thus, athletes who showed high levels of resilience had higher levels of quality of life (Cardoso & Sacomori, 2014). Porto et al. (2016) observed higher levels of resilience in people with disabilities, particularly in terms of their relationship with their body and sexual esteem. Sport can enhance athletic identity and self-esteem, and people with disabilities who participate in sport develop confidence to confront and manage their own disability and its challenges (Porto et al., 2016). This leads to different cognitive and behavioural strategies and, consequently, motivation to adapt to change (Macdougall et al., 2016; Machida et al., 2013).

Powell & Myers (2017) note that Paralympic athletes generally recognise that their ability to overcome difficulties is linked to their physical and mental experiences and challenges related to their disability. They believe that the development of these resilient traits and the ability to cope with physical and emotional pain comes from the constant exposure to pain and stress experienced (Powell & Myers, 2017). The wheelchair tennis players who participated in the study by Richardson et al. (2017) highlighted an important detail: participation in this sport builds resilience, which can then be transferred off the court. The challenges they face as players help them develop resilience that they can apply to their everyday lives. Hariharan et al. (2014) found that resilient people with disabilities have higher emotional intelligence and more positive perceptions of their environment. These positive perceptions, combined with emotional resources, enable these people to overcome barriers and difficulties.

1.5 Subjective well-being

A successful life results from the combination of four domains: positive institutions (families, schools, clubs, businesses, communities), the development of positive relationships (friendship, marriage, self-esteem, success, etc.), the emergence of positive traits (character strengths, talents, interests, values), and positive subjective experiences (happiness, fulfilment, flow) (Park et al., 2004). For authors such as Wong (2011), well-being, virtue, resilience and purpose are the four fundamental pillars of positive psychology.

Happiness is the ultimate goal of life worldwide (Kashdan et al., 2005; Oishi et al., 2007) and consists of an internal state based on different subjective evaluations of one's own quality of life (Kashdan et al., 2005). The need and interest in understanding the processes underlying the measurement of happiness has meant that well-being has been the subject of study by philosophers and thinkers for centuries (Aristotle, Kant, Thomas Aquinas, among others) (Diener, 1994; Diener et al., 1998; Novo, 2005).

The literature suggests that well-being leads to significant increases in health and longevity, work and earnings, social relationships and benefits to society (Gunderman, 2012; Ryan & Deci 2001). Well-being gives people higher levels of self-confidence, enthusiasm, leadership skills and sociability. Happy people tend to be healthier, more efficient, more successful and more likely to volunteer in society, business and other organisations, individuals and governments, thereby improving performance (Diener et al., 2008; Ryan & Deci 2001).

With the increasing difficulty of defining well-being, a subdivision has emerged. Well-being has been studied in two streams, one according to happiness - subjective well-being (SWB), representing hedonic well-being, and the other according to human potential - psychological well-being (PHW), representing eudaimonic well-being (Caddick & Smith 2014; Campbell-sills & Stein, 2007; Chatzisarantis & Hagger, 2007; Dagenais-Desmarais & Savoie, 2012; Kashdan et al., 2005; Keyes et al., 2002; Ryan & Deci, 2001). The two approaches to well-being, hedonia and eudaimonia, are based on different views of human nature (Deci & Ryan, 2008).

Hedonism is defined as living in pursuit of pleasure, it represents how a person feels about their own life (Kashdan et al., 2005) and results from the gratification of desires, the pursuit of pleasure and the rejection of pain (Ryan & Deci, 2001). It is characterised by pleasurable experiences, enjoyment, the alleviation of suffering and the achievement of

satisfaction (Huta & Waterman, 2014). Hedonic well-being is subjective well-being, a subjective experience of well-being (Waterman, 2008). Several instruments have been developed to study hedonia, with self-report measures of the respective subjective experiences associated with happiness. The concept of subjective well-being emerged in the 1960s, mainly in the USA (Albuquerque & Tróccoli, 2004; Novo, 2005), centred on the idea of a "good life", where each person has the right to judge what constitutes a good life (Waterman, 2008). One of the reasons for the rapid growth of the study of subjective well-being was the achievement by Westerners of a level of material well-being that created a need to go beyond the mere survival of the good life to quality of life (Diener & Ryan, 2009; Galinha & Ribeiro, 2005). Subjective well-being then emerges as a subjective approach to quality of life (Diener, 2000), allowing happiness to be studied scientifically (Albuquerque & Tróccoli, 2004), based on people's evaluation of their life as a whole or in important domains (e.g. work, marriage and health), or of the affections and emotions they feel at the moment (e.g. joy, anxiety and depression) (Diener, 1984; Diener, 2000; Diener et al., 1999; Diener & Ryan, 2009; Moraes et al., 2012). Subjective well-being, which has a hedonic premise and is complex and multifaceted in nature, evaluates life cognitively and affectively, and is divided into two components: the emotional component (positive affect and negative affect) and the cognitive component (life satisfaction) (Diener et al., 1999; Diener, et al., 2003; Ryff & Keyes, 1995). Cognitive evaluations are characterised by satisfaction with life and a sense of personal fulfilment, and affective evaluations require the presence of positive affect (positive emotions and moods) and the absence of negative affect (negative emotions and moods) (Dias et al., 2008; Diener, 2000; Diener et al., 2003; Diener & Ryan, 2009; Giacomoni, 2004; Ryan & Deci, 2001; Waterman, 2009).

Positive affect is characterised by a hedonic satisfaction experienced at a particular moment, based on a description of an emotional state rather than a cognitive judgement. Negative affect is characterised by a transient state involving negative experiences. Life satisfaction is a cognitive evaluation that a person makes of certain aspects of his or her life, based on a comparison of real life circumstances with a self-defined model (Albuquerque & Troccóli, 2004; Diener et al., 2003).

Deci and Ryan (2008) argue that subjective well-being has been associated with the hedonic perspective of well-being. However, these authors point out that for an accurate interpretation of hedonic well-being, only positive affect and negative affect should be assessed, as life satisfaction is not a strictly hedonic construct, but has traditionally been considered as such and used as an indicator of subjective well-being. According to Diener

et al. (2009), Norman Bradburn showed that positive affect and negative affect are not simply opposites. He also showed that in clinical psychology, resolving negative states does not necessarily lead to positive states. The elimination of pain does not directly correspond to an increase in pleasure, just as the absence of sadness and anxiety does not necessarily make people happy. For Diener (1996), the relative preponderance of positive affect over negative affect represents hedonic balance. A person has subjective well-being when he or she engages in activities that give him or her satisfaction with life (cognitive side) and experiences high positive emotions and low negative emotions (affective side) (Diener, 2000; Giacomoni, 2004).

The study of subjective well-being has had a strong impact on the fact that each person's life is evaluated not by others but by themselves, based on what they think and feel is a very important aspect (Diener, 2000). According to Diener & Suh (1997), subjective well-being is essential in assessing quality of life precisely because of its subjective nature, as different people react differently to similar situations and the analysis of social indicators alone does not provide a true analysis.

Physical activity is recommended as an integral part of the treatment of emotional imbalances. The emotional experiences associated with physical activity help people build psychosocial resources that contribute to mental health. In contrast, sedentary behaviour can reduce positive emotions, leading to a reduction in these resources (Hogan et al., 2015). Several studies have shown a positive relationship between physical activity and higher levels of well-being (Caddick & Smith, 2014; Hogan et al., 2015; Mack et al., 2012; Smith et al., 2011). This relationship has also been demonstrated specifically with subjective well-being (Downward & Rasciute, 2011; Ku et al., 2007; Ku et al., 2014; Moraes et al., 2012; Olsson et al., 2014). Over the past decade, there has been a significant increase in interest in the impact of youth sport in creating positive experiences of psychosocial development (Taylor & Bruner, 2012). In a review study, Pawlowski et al. (2011) suggest that participation in sport generally contributes to people's subjective well-being. The researchers state that their findings provide an impetus for the growth of public policies aimed at promoting sport to improve citizens' subjective well-being. Increasingly, development programmes through sport aim to promote the acquisition of sporting skills, with the view that these can be transferred to life skills (Woodcock et al., 2012). Many researchers conclude that physical activity helps to reduce negative emotions and promote positive emotions. They argue that one's physical perception is shaped by a social, cognitive and behavioural process that is facilitated in the context of sport, and that the

influence of emotions in sport is fundamental to performance (Ardahan, 2012; Labord et al., 2011).

Due to their inherent characteristics and challenges, people with disabilities are a vulnerable risk group for mental disorders such as depression, anxiety, stress, frustration, lack of motivation and social impairment (Sahlin & Lexell, 2015). Many sports that are initiated during rehabilitation can be continued for enjoyment throughout the life of the person with a disability, with enjoyment being identified as the main motivational factor in the willingness to continue with sport (Martin, 2006).

Blauwet and Willick (2012) studied the Paralympic Movement and concluded that it is a platform to showcase the capabilities of people with disabilities, while acting as a catalyst for disability rights, ensuring integration, equal opportunities and accessibility.

In studies analysing subjective well-being in athletes with disabilities, athletes express high levels of positive affect and low levels of negative affect (Puce et al., 2023; Shapiro & Malone, 2016). High levels of life satisfaction are associated with sport practice and the experiences provided by adapted sport (Martin et al., 2015; Martin et al., 2020; Rodrigues et al., 2021; Sikorska & Gerc, 2018). People with physical disabilities who participate in adapted sport have higher life satisfaction than people with physical disabilities who do not participate in any adapted sport (Blauwet & Willick, 2012; Frank et al., 2013; Yazicioglu et al., 2012). Sport is presented as an activity that allows one to divert negative emotions and energies (Machida et al., 2013). Athletes with disabilities also report that their sport experience was positive in terms of motivational, affective, cognitive and social variables (Martin, 2006).

1.6 Thesis overview and aim

Research on sport in the context of disability is an asset because of the need to broaden and deepen knowledge on the subject, in order to bring about changes in social attitudes and behaviours that are still strongly present in our society. Ultimately, it allows for a better integration of people with this condition. There is a growing interest in studying social support, resilience and well-being in this population (Winnick & Porreta, 2017). It was found that there are studies that consistently validate the importance of social support in adapted sport (Cardoso et al.,2018; Monton et al., 2022; Swanson & Zhao, 2008). Similarly, the literature has shown associations between sport practice and resilience

(Cardoso & Sacomori, 2014; Machida et al., 2013; Porto et al., 2016) and also between sport practice and well-being (Downie & Koestner, 2008; Dursun et al., 2014; Kokun et al., 2018; Kokun et al., 2020; Mudjanto et al., 2017; Shapiro & Martin, 2010) in people with disabilities. Studies were also found on the relationship between: well-being and resilience (Martin et al., 2015; Martin et al., 2021; Sikorska & Gerc, 2018), resilience and social support (Powell & Myers, 2017), social support and well-being (Aitchison et al., 2021; Crawford et al., 2015; Fiorolli et al., 2016). Only one study was found that examined the relationship between the three variables in this population (Atkinson & Martin, 2020). Studying the well-being and resilience of athletes with disabilities, and understanding the influence of social support, will allow researchers to analyse the impact of sporting practice and thus contribute to a better understanding and acceptance of the need for inclusion of people with disabilities in sport. Indeed, it is believed that it could lead to important indicators that will help to identify better strategies to promote sport for people with disabilities, as well as increase their resilience and well-being.

The aim of this doctoral thesis is to study the following variables in an integrated approach: social support, resilience and subjective well-being in athletes with disabilities who practise adapted competitive sport, with the following specific objectives:

1. To identify and evaluate the scientific literature, through a systematic, peer-reviewed review, on the relationship between sport participation and (i) well-being; (ii) resilience; and (iii) social support;

2. To characterise the Portuguese delegation at the Tokyo 2020 Paralympic Games through socio-demographic (age, gender, occupation, education, and sport practice) and psychosocial variables (positive and negative affect, life satisfaction, resilience, and social support);

3. To understand the relationship between social support, resilience and positive affect and negative affect, and life satisfaction in athletes with disabilities participating in federated sport.

In order to achieve this objective, this thesis has been divided into five chapters:

Chapter 1 provides a general introduction to the field of study and consists of a narrative review aimed at framing the present research.

Chapter 2 provides a systematic review of the field of study. Focusing exclusively on people with disabilities, the systematic review aimed to identify and assess the peer-

reviewed scientific literature on the relationship between sport participation and (i) well-being; (ii) resilience; and (iii) social support.

Chapter 3 presents a characterisation study of the Portuguese delegation at the Tokyo 2020 Paralympic Games through socio-demographic and psychosocial variables (positive and negative affect, life satisfaction, resilience, and social support).

In Chapter 4, a study is conducted with the aim of analysing the relationship between types of social support (parents, coach, friend and best friend), resilience and positive and negative affect in Portuguese athletes with disabilities involved in sport.

Chapter 5, the last chapter of this thesis, contains the overall discussion of the results, the reflections and conclusions of the study, the main limitations, the difficulties encountered in carrying out the research and, finally, some suggestions for future work.

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Chapter 2 – Paper I: Well-Being, Resilience and Social Support of Athletes with Disabilities: A Systematic Review

2.1 Abstract

Sport for people with disabilities appears to play a positive role in the well-being, resilience and social support of athletes with disabilities. Thus, this systematic review aims to evaluate the effect of adapted sport on the well-being, resilience and social support in a population with disabilities. The Pubmed, Web of Science, Scopus and SportDiscus databases were used, with several descriptors and Boolean operators. A total of 287 studies were identified through searching the databases. After the data extraction process, twenty-seven studies were included for analysis. In general, these studies show that adapted sport has a positive impact on the levels of well-being, resilience and social support resources for people with disabilities, contributing to their personal development, quality of life and integration into society. Considering the impact on the variables studied, these results are important to support and encourage the development of adapted sport.

Keywords: Adapted Sport; disabilities; inclusion; well-being; social Support; resilience

2.2 Introduction

Although there are barriers to practice (including the challenge of inclusion, the limited programs, the inaccessibility of facilities, difficulty in transport and even the lack of social support in the various aspects (Javorina et al., 2020; Misener & Darcy, 2014), sport as a tool that promotes health, quality of life and social integration presents itself as a benefit for people with disabilities, namely in self-confidence (Blauwet & Willick, 2012, Frank et al., 2013; Slater & Meade, 2004), satisfaction and quality of life, self-esteem (Blauwet et al., 2012, Frank et al., 2013; Sahlin & Lexell, 2015; Sikorska & Gerc, 2018; Slater & Meade, 2004), reduction of suicidal tendencies, a more independent attitude and motivation to continue evolving (Blauwet & Willick, 2012, Frank et al., 2013).

On the other hand, the Paralympic Movement has been considered as a platform for presenting the abilities of people with disabilities while serving as a catalyst for their rights, ensuring integration, equal opportunities and accessibility (Blauwet & Willick, 2012). Thus, in addition to issues related with the performance of participants, attention has also been dedicated to understanding the processes underlying the measurement of happiness, leading to well-being being the object of study in the most diverse areas and populations (Diener, 1994; Diener et al., 1998). Well-being has been studied in two streams, one according to happiness (subjective well-being representing hedonic well-being) and another according to human potential (psychological well-being representing eudaimonic well-being) (Caddick & Smith, 2014; Chatzisarantis & Hagger, 2007; Kashdan et al., 2008; Keyes et al., 2002; Ryan & Deci, 2001). Eudaimonia represents living life according to one's own potential or internal virtue (Kashdan et al., 2008), it derives from personal activities that promote self-realization through the reali-zation of personal potentialities and the achievement of one's own life goals (Ryff & Keyes, 1995; Waterman, 1993). Hedonism represents life in pursuit of pleasure, what a person feels about his or her own life (Kashdan et al., 2008), results from the satisfaction of desires, the pursuit of pleasure and the rejection of pain (Ryan & Deci, 2001). It is characterised by pleasurable experiences, enjoyment, the alle-viation of suffering and the achievement of satisfaction (Huta & Waterman, 2014).

In the literature, hedonic well-being represents subjective well-being, a subjective experience of well-being (Waterman, 1993). Several instruments have been created to study hedonia, with self-report measures of the respective subjective experiences associated with happiness. Subjective well-being, of hedonic premise and complex and multifaceted nature, evaluates life cognitively and affectively, being subdivided into three components: positive affect, negative affect and life satisfaction (Diener et al., 1999; Diener et al., 2003; Ryff & Keyes, 1995).

Several studies seem to prove the positive relationship between practising sports and the increase of well-being (Caddick & Smith, 2014; Hogan et al., 2015; Mack e al., 2012; Smtih et al.,2011), including subjective well-being (Downward & Rasciute, 2011; Ku et al., 2007; Ku et al., 2014; Moraes et al., 2012; Olsson et al, 2014). People with motor disabilities who practice sport have higher life satisfaction compared to people with motor disabilities who do not practice sport (Blauwet & Willick, 2012; Frank et al., 2013; Yazicioglu et al., 2012).

Another topic considered increasingly important in studying people with disabilities is resilience. Fletcher and Sarkar (2012) present resilience as "The role of mental and

behavioural processes in promoting personal assets and protecting the individual from the potential negative effect of stress" (p.675). The way a person reacts to adversity in a positive way depends on the adversities to which they have been subjected and on their own adaptation to them (Morgan et al., 2013). The study of resilience focused initially on children and more recently on adults (Fletcher & Sarkar, 2012; Ong et al., 2009), families and communities that have been exposed in some way to stressful situations, such as the loss of a family member, terrorism, severe illness and natural disasters (Fletcher & Sarkar, 2012). Positive findings, although not directly related to people with disabilities, are of extreme importance as these parents and family members are active participants in the education, rehabilitation and training process of their children and family members with disabilities (Halstead et al., 2018; Mohan & Kulkarni, 2018; Rajan et al., 2018).

Cohn et al. (2009) studied the relationship between positive emotions and resilience. It was identified that positive emotions lead to higher levels of resilience in the future and, on the other hand, resilience also achieves its effects, in part, through the generation of positive emotion. In stressful situations, people with higher resilience experience more positive emotions than those who are less resilient. Ryff (2014) states that well-being sometimes results from actively grappling with adversity. Experiences such as experiences with obstacles, failure and disappointment are necessary to find internal strengths and renew resources that allow one, at the same time, to become aware of one's own limitations and vulnerabilities.

With the increasing development and importance of the concept of resilience, much recent research has emerged within sport (Bejan & Tonita, 2014; Besharat, 2010; Cevada et al., 2012; Fletcher & Sarkar, 2013; Fontes & Brandão, 2013; Lu et al., 2016; Morgan et al., 2013; Neves et al., 2015; Nicholls et al., 2016; Sarkar & Fletcher, 2014). Sports participation of people with disabilities has also shown implication for resilience, especially access to social support, opportunities and meaningful social experiences, in people facing traumatic injuries (Machida et al., 2013).

Another of the important and indispensable themes to the study of people with disabilities in sport is social support. The study of social support has been the object of interest of several researchers, in the sense of definition of the conceptual model (Veiel, 1985). A recent approach proposes a model that highlights two life contexts through which people can prosper (successfully facing the adversities of daily life and constantly searching for opportunities for growth and development). Two functions of relational support, fundamental to the experience of developing in each context, have been pro-posed,

identifying mediators through which relational support is likely to have long-term effects on prosperity (Feeney & Collins, 2015). Social support has been considered as a positive influence in the sport context for this population (Dunst & Trivette, 1990), contributing to improve and help the psychological issues that allow the development of their abilities, experiencing and evaluating their limits, using them positively as resources and qualities, accepting the difficulties (Ascione et al., 2018).

Sheridan et al. (2014) conducted a systematic review focusing on social support and concluded that coaches, parents and peers have a fundamental role in sport (especially in youth sport) through their positive influence on various factors. They also realized that it is important to adjust the athlete's support pattern throughout their career as needs change.

To the best of our knowledge, no study has systematically reviewed the literature on the factors associated with the impact of adapted sport on these variables. Focusing solely on people with disabilities, the purpose of the present systematic review was to identify and assess the peer-reviewed scientific literature on the relationship of sport practice on: i)well-being; ii) resilience; iii) social support.

2.3 Materials and Methods

2.3.1. Eligibility Criteria

The present systematic review was performed according to the PRISMA protocol (Moher et al., 2015; Page et al., 2021) and the methods suggested by Bento (2014). The protocol was registered in PROSPERO, with the following number: CRD42022362330 (https://www.crd.york.ac.uk/prospero/export_details_pdf.php, accessed on 13 December).

The PICOS strategy (Methley et al., 2014; Nang et al., 2015) was defined as follows: i) "P" (Patients) corresponded to participants with any type of disability, of any age, gender, ethnicity or race; ii) "I" (Intervention) corresponded to a sports program, implemented in the population mentioned before, regardless of the intervention period; iii) "C" (Comparison) corresponded to the comparison between those practicing and those not practicing sports or pre-post intervention program; iv) "O" (Outcome) corresponded to levels of well-being, resilience and social support as primary or secondary variables in

focus; v) "S" (Study de-sign) corresponded to intervention studies, randomized controlled trials (RCTs) or not (RCTs) and cross-sectional studies.

2.3.2. Information sources and research strategies

The systematic search for articles was conducted between September and 19 December 2022, in four electronic databases: PubMed (all fields), Web of Science, Scopus and SPORTDiscus (title, abstract and keywords). We searched all studies published in English until 31 December 2022.

The reference lists of all selected articles were independently screened to identify additional studies missed in the initial search. The following indexed search de-scriptors were used across all databases in the following formats: “cerebral palsy” OR “motor disability” OR “motor disorder” OR “physical disability” OR “vision impair-ment” OR “visual impairment” OR “vision disability” OR “vision disorders” OR “in-tellectual disability” OR “mental retardation” OR “intellectual disabilities” OR “intel-lectual developmental disorder” OR “intellectual impairment” OR “hearing impair-ment” OR “hearing disability” or “hearing loss” OR “multiple disabilities” OR “para athletes” OR “para-athlete” OR “Paralympian” OR “Paralympians” OR “paralympic athletes”) AND sport* AND (“social support” or “social influence” OR “well-being” OR “resilience” OR “resiliency”.

2.3.3. Inclusion criteria

To be included in this systematic review, studies had to meet the following criteria: i) articles published in English by 31 December 2022, regardless of country; ii) in-tervention studies, RCT’S and non-RCT’S, cross-sectional studies; iii) intervention studies with a sports programme; iv) individuals with disabilities, of the most varied types; v) studies with individuals of any age group, gender, race or ethnicity.

2.3.4. Exclusion criteria

For this review, the following exclusion criteria were considered: i) studies published before 2001; ii) studies with participants with other pathologies (e.g., mental illnesses, degenerative diseases); iii) studies that did not describe the intervention protocol; iv) studies in which the intervention is not only a sports programme (example: physical exercise + nutrition).

2.3.5. Data extration process

The search was carried out independently by two researchers. In the first phase, all searched manuscript bibliographies were organised using the EndNote software and so duplicated studies were eliminated. Subsequently, the studies were analysed and selected based on the defined inclusion and exclusion criteria. Subsequently to the completion of this process, the results were compared by the researchers.

After reading the full text of all the selected studies, according to the previously defined eligibility criteria, one of the researchers identified the most relevant information published in each study and entered it into a preliminary characterization table (authorship, country reference, objectives, participants, modality, assessment tech-niques, results and quality score).

2.4 Results and discussion

2.4.1. Selection of studies

The initial search conducted in the four databases revealed a total number of 287 identified articles. In the first phase, and after reading the titles and abstracts, 81 were removed for being duplicates and of the 206, 165 were excluded after applying the in-clusion and exclusion criteria previously defined for this systematic review. This re-sulted in 41 articles, of which 2 we were not able to access. Of the 39 articles assessed for eligibility, after a reading of the articles, a sample of 27 studies was considered for analysis. As represented in the PRISMA flowchart (Figure 1).

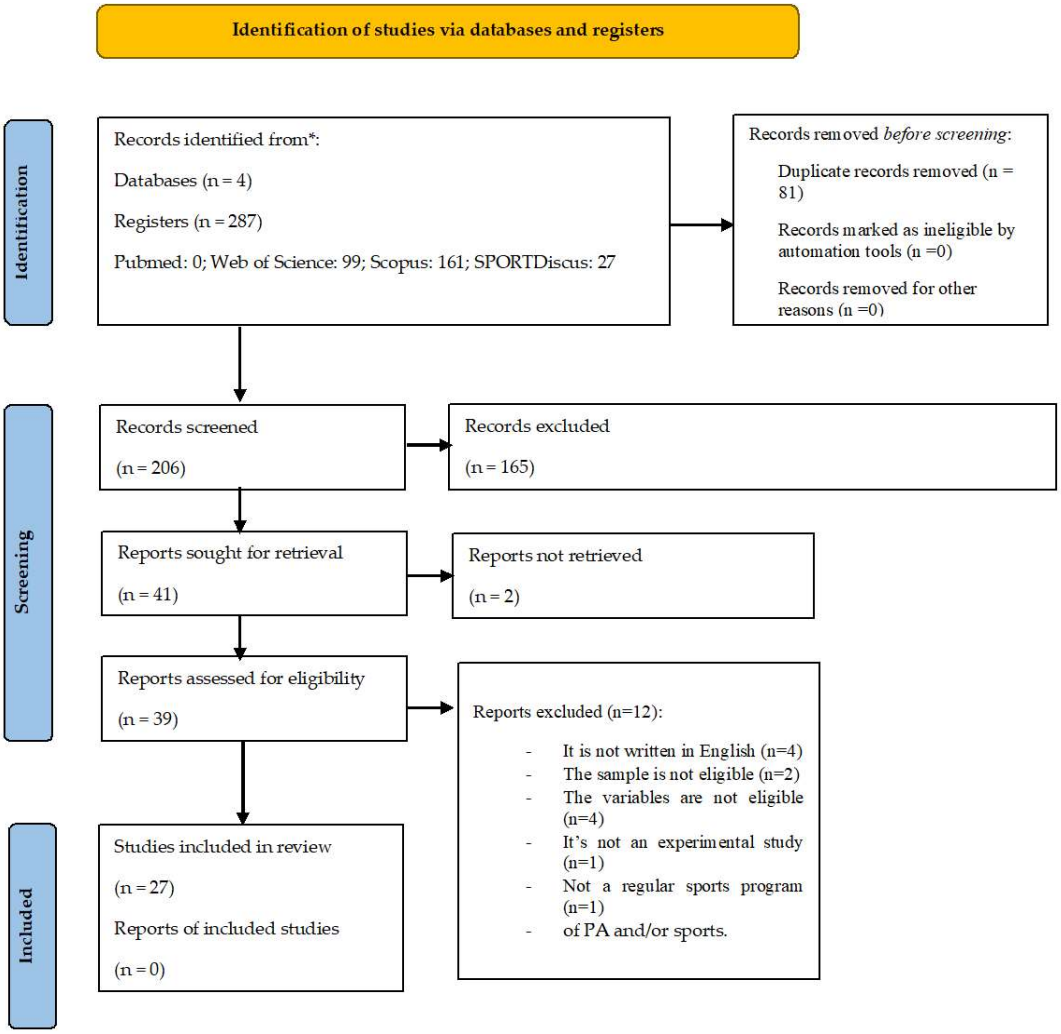

Figure 1. PRISMA flow diagram illustrating each phase of the search and selecting process.

2.4.2. Quality of the information

Two reviewers independently evaluated the quality of the studies based on the following domains from recommendations. The methodological quality of the studies was assessed based on Downs & Black's assessment (Downs & Black, 1998), with the quality levels: excellent (26-28); good (20-25); fair (15-19); and poor (≤14). No studies were excluded due to low quality scores.

The full text was critically read to confirm that the study fulfilled the inclusion criteria. Twelve studies were excluded, which resulted in a final sample of 27 scientific studies that formed the basis of the present study, as shown in the following Table 1.

Table 1. Characteristics of the studies.

Author, Reference, Country	Aims	Participants	Modalities	Evaluation techniques	Results	Quality score
Aitchison et al. (2021) **United Kingdom**	Explore the experiences of social support in elite British para-swimmers and the influence on their wellbeing and performance	N=9 British para-swimmers (3 male, 5 female, mean age 24.9 years). Disabilities: physical, visual and intelectual disabilities	Swimming	Semi-structured interviews with duration ranged from 48 to 88 min, (mean ± SD length 61 ± 15.3 min)	Social support in British para-swimmers is important for performance and wellbeing. Specially a strong coach-athlete relationship, motivational and supportive teammates.	Fair
Atkinson and Martin (2020) **U.S.A.**	Understand if grit, hardiness, resilience, and the added variable of athlete social support, would predict life satisfaction and sport engagement in wheelchair rugby athletes	N=87 adult athletes (80 males and 7 females). 35 presencial and 52 online. M age = 35.94 years, SD = 9.26) Disabilities: amputation (n=6), spinal cord injury (n=60), cerebral palsy (n=9), other (n=2).	Wheelchair rugby	Connor-Davidson Resilience Scales revised Norwegian Hardiness scale Satisfaction with Life Scale. 16-item Athlete Engagement Questionnaire 22-item Athletes' Received Social Support Questionnaire	The resilience predicted 32% of the variance in life satisfaction and was the only significant predictor of life satisfaction. Grit, social support, resilience, and hardiness were all significant predictors.	Good
Cardoso & Sacomori (2014)	Examine resilience in the specific subgroup of Brazilian	N=136 athletes Aged 18 or over with Disabilities: physical	Track and field, table tennis, swimming,	Semi-structured Interviews The questionnaire consists	Participants were observed to have achieved higher resilience scores, while those with cerebral palsy	Fair

Brazil	competitive athletes with physical disabilities. Test the validity of the Wagnild and Young (1993) Resilience Scale in Brazil for this population		weightlifting, basketball, rowing and tennis.	of 25 items	obtained the lowest and those with amputations or polio obtained intermediate scores. The participants in this research study displayed a significantly lower mean resilience than those reported in other studies with the general population.	
Cardoso et al. (2018) **Brazil**	Describe the importance of structural and human resources support for Brazilian Paralympic athletes	N=10 Paralympic athletes Athletics (7 males and 3 felames) M age 28 ± 7.95. Swimming N=10 (8 male and 2 female) M age=22.50 ± 4.54 Disabilities: physical	Athletics and Swimming	Semi-structured interview	The results show that Structural Support and Human Resources Support are considered fundamental by the interviewed athletes.	Poor
Crawford, Burns & Fernie(2015) **United Kingdom**	Investigate the relationship of psychological resilience and vulnerability factors of involvement in the SO compared to being involved in sport not through the SO, and no sports activity	N=101 (44 female and 57 male) M age 35.1 (range 18-67) Disabilities: Intelectual	Athletics, football, judo, swimming, bowling and multiple sports	Demographic questionnaire Wechsler Abbreviated Scale of Intelligence (WASI) Rosenberg Self-esteem Scale The Life Stress Inventory Social Support Self Report	The results indicate that there is an association between involvement in the SO and reduced stress, increased quality of life, and higher self-esteem. The hypothesis of increased social networks was not demonstrated. The findings provide further evidence of a positive association between sport involvement and increased psychological wellbeing,	Good

					especially for those involved in the SO.	
Downie & Koestner (2008) **Canada**	Study 1 compared the relation of success in the Paralympics versus the Olympics to national subjective well-being and life expectancy. Study 2 conceptually replicated these results using the standings of national men's and women's soccer teams	Olympics and paralympics athletes	Olympics and paralympics modalities (not specified) Soccer	Olympic and Paralympic Performance. Happiness. data was taken from the World Database of Happiness	Study 1 - There were mean differences in happiness for those countries that had a Paralympics' team compared to those that did not. This suggests that even though countries without a Paralympics' team were no less wealthy, or happy, their physical well-being was reduced. Study 2 - Countries with a female soccer team were happier.	Poor
Dursun et al. (2015) **Turkey**	Assess the effects of ice skating on the psychological well-being, self-concept, and sleep quality of children with hearing or visual impairment	N=40 students (20 visually impaired and 20 hearing impaired) Aged 8–16 Disabilities: Visual and deaf	Ice skating	A self-report form of the Strengths and Difficulties Questionnaire (SDQ) The Piers–Harris Children's Self-Concept Scale (PHCSCS) Pittsburgh Sleep Quality Index (PSQI)	There was a significant improvement in self-concept, behavioural and emotional problems, and sleep quality ($p<0.05$ for each) of the children with hearing impairment. Although the sleep quality ($p=0.019$) and emotional problem scores (p ¼ 0.000) of the visually impaired children improved; self-concept, peer relations and hyperactivity scores of these children worsened (p50.05 for each)	Fair

Giovanni et al. (2016) **Italia**	To examine the perception of well-being, social integration, and emotional problems of Down Syndrome (DS) subjects and to investigate whether parents and their Down children have the same opinion on the problems caused by DS	N=93 participants with DS 58 swimmers (aged 16.31 ± 1.55), 35 DS sedentary subjects (aged 16.06 ± 1.39), and their parents (n = 93). Disabilities: Down Syndrome	Swimming	2 Questionnaires (SDQ) were individually administered: Self-reported version (SDQ-SR), completed by the DS participants, and the Parental version (SDQ-P), completed by their parents.	Results showed significant differences between sportive vs. non-sportive groups in the overall domain scores, with better results for the sportive group. Parents of DS non-sportive participants underestimated their children's problems in 6 of the 8 domains. The results validate the hypothesis that foresees a positive relation between well-being perception and sport activity and competitions in individuals with MR, such as DS	Good
Hamdani et al. (2019) **Canada**	To understand the state of perceived wellness and wellness-promoting behaviours of children and youth with IDD from multi-stakeholder perspectives	N= 35 in-person surveys athletes N=352 online surveys caregivers (n = 240) and coaches (n = 112) Disabilities: Intelectual	Special Olympics	A cross-sectional Likert survey methodology	Athletes, caregivers and coaches generally agreed rather than disagreed with wellness statements, with the exception of coaches' responses regarding healthy nutrition. Athletes agreed more than caregivers and coaches that they engaged in some wellness promoting behaviours (i.e., calming oneself down, participating in their communities).	Fair
Haslett et al. (2017)	To interpret participation in	N=10 male athletes from three clubs (M	Wheelchair Rugby	A semi-structured interview guide was developed based	The results indicate that in disability sport participation, the	Poor

Ireland	Wheelchair Rugby through the conceptual lens of the SRM.	age = 33.1 years, age range: 22–53 years).		on the components of the SRM	experience of social oppression, inequality and cultural stereotypes of disability can be synonymous with the personal experience of physical impairment.	
Kokun et al. (2018) **Ukraine**	To determine the influence of sports on Paralympic athletes' personal development	N=106 Paralympic and Defilimnical (Age 16-53, 84 men and 22 women) N=191 students (Age 17-25, 91 without health problems, 98 with disabilities not engaged in sports) Disabilities: Physical and deaf	Paralympic sports	The Ryff Scales of Psychological Well-Being and S. Maddi's Personal Hardiness test.	Paralympic athletes achieve an optimal level of psychological well-being and a significant increase in all psychological hardiness components.	Fair
Kokun et al. (2020) **Ukraine**	To investigate the personal characteristics supporting Paralympic athletes' self-realization in sports.	N=106 Paralympic and Defilimnical in diferente sports (Age 16-53, 84 men and 22 women) Disabilities: Physical and deaf	Paralympic sports (football, fencing, power-lifting, sitting volleyball, judo, canoeing in pairs, swimming)	Self-efficacy scale of R. Schwarzer and M. Yerusalem; Ryff's Scales of Psychological Well-Being; S. Maddi's Personal Hardiness test (adapted by D. Leont'ev); The modified techniques of scaled self-estimation; The Self-Organization	The most important personal characteristic supporting Paralympic athletes' self-realization in sports is their psychological hardiness, since all four of its indicators have sufficiently close correlations with three of the four self-realization indicators - "Satisfaction with own sports career", "Fastness of sportive goal setting after achievement of a	Fair

				Questionnaire	previous one" and "Reaching of top-achievements in sports". Paralympic athletes' fastness of sportive goal setting after achievement of a previous one is significantly related to all ten psychological well-being scales, and their clarity of images on own future in sports correlates with five scales.	
Macdougall et al. (2016) **Australia**	Explore well-being in para-athletes in a way that is consistent with theoretical perspectives	N=23 Para-athletes (10 female and 13 male) M age = 28.5 years, age range = 16–53 years) Disabilities: Physical	Athletics, Boccia. Canoe slalom, cycling, swimming, table tennis, triathlon, wheelchair basketball, wheelchair rugby	Semistructured interviews	The well-being needs and strengths of para-athletes differed across gender, sport, level of competition, and nature of impairment. Well-being strengths were perceived to increase as athletes increased their level of competition, and included personal growth, optimism, strong social support networks, and contributing to multiple communities.	Poor
Machida et al. (2013) **U.S.A.**	Examine the the resilience process of sport participants with acquired spinal cord injury, and the role of sport participation in	N=12 men with aged 21 to 41 years Disabilities: Physical	Wheelchair rugby	Semistructured interviews	The development of resilience is a multifactorial process involving pre-existing factors and pre-adversity experiences, disturbance/disturbing emotions, various types and sources of social	Poor

	the resilience process				support, special opportunities and experiences, various behavioral and cognitive coping strategies, motivation to adapt to changes, and learned attributes or gains from the resilience process.	
Martin et al. (2015) **U.S.A.**	To predict both general and sport-specific quality of life using measures of grit, hardiness, and resilience	N=75 (74 males and 1 female) M age = 37.0 years, SD = 11.01 Disabilities: Physical	Wheelchair basketball	8- question Short Grit Scale Connor-Davidson Resilience Scales revised Norwegian hardiness scale (Dispositional Resilience Scale. Satisfaction with Life Scale. 16-item Athlete Engagement Questionnaire	Hardiness and resilience combined to predict 26% of the variance in life satisfaction, whereas grit was not a significant predictor. Athletes higher in both resilience and hardiness expressed greater life satisfaction compared with athletes lower in hardiness and resilience.	Good
Martin et al. (2020) **U.S.A.**	Determine if grit, hardiness and resilience predicted life satisfaction and sport engagement in Parasport athletes	N=40 (22 ice-hockey athletes and 18 wheelchair rugby (M age= 32.0; SD = 8.6) Disabilities: Physical	Ice-hockey, wheelchair rugby	Short Grit Scale (Grit-S) 10-item Connor-Davidson Resilience Scale (10-item CD-RISC) Norwegian hardiness scale (Dispositional Resilience Scale 15 (DSR-15) Satisfaction with Life Scale (SWLS) 16 item Athlete Engagement	Hardiness and resilience are important predictors of life satisfaction with grit being irrelevant and resilience and grit are important predictors of sport engagement. Overall resilience appears to be the most critical predictor for both outcomes across the three studies.	Good

				Question naire (AEQ)		
Mira et al. (2022) **Portugal**	Characterizing subjective well-being, resilience, and social influence	N=31 of the 33 athletes of the Portuguese Paralympic team M age = 34.45 ± 11.7 years (21 men and 10 women) Disabilities: Physical	Multiple sports	Social Support perceived by athletes with disabilities, a scale based on the recommendations of Jago et al Subjective well-being was assessed through Satisfaction with Life Scale Positive and negative affect were evaluated through PANAS—The Positive and Neg ative Affect Schedule Brief Resilience Scale (BRS)	Athletes perceive a positive affect superior to negative affect. Regarding social support, the perception of support by the coach is the one with the highest value. The bivariate correlation was observed between life satisfaction and positive affect (medium), between positive affect with social support by the parents (high) and between positive affect with social support by the friends (medium). Resilience displayed a negative and significant association with the negative affect (high).	Good
Monton et al. (2022) **Canada**	Explores the role of sport-life bal ance and well-being on athletic performance.	N=47 olympic athletes N=14 paralympic athletes N=11 not specified (2 male, 40 female and 10 athletes that did not specify) Disabilities: Physical	Multiple sports	Mixed-methods research design consisting of an online survey, and a series of semi-structured, follow-up interviews.	Overwhelmingly, athletes felt they received the most support from family and friends. These results exemplify the importance of athletes' external support systems.	Poor
Mudjianto et al. (2017)	Determine the quality of life of Paralympic athletes who are	Handicapped/ disabled athletes Pelatda West Java	Not specified	Questionnaire WHOQOL-BREF.	The results of the analysis and calculation of the data obtained, the four domains: physical health,	Poor

Indonesia	members in West Java Peparnas Pelatda 2016				psychological well-being, social relationships and the relationship with the environment is a good average range	
Porto et al. (2016) **Chile**	To analyse the association of team sports practice and physical and psychological factors with sexual adjustment in men with paraplegia	N=60 men (30 wheelchair basketball and/or handball athletes and 30 non-athletes) Disabilities: Physical	Wheelchair basketball and/or handball athletes	The Resilience Scale	Resilience was correlated with and predictive of sexual adjustment.	Good
Powell and Myers (2017) **United Kingdom**	Understand the lived-experiences of mentally tough Paralympians, aiming to conceptualize MT in a Paralympic context and investigate its development	N= 10 Team Great Britain Paralympic athletes (9 male and 1 female M age = 27.9, SD = 7.1 Disabilities: Physical	Multiple Sports	Semistructured interview	The development of MT requires a series of formative experiences, combined with support and coping resources. Athletes in general would benefit from exposure to highly demanding situations in a supportive environment to develop mentally tough characteristics and behaviours and to develop personalized cognitive strategies.	Poor
Puce et al. (2019) **Italy**	Investigate the role of competitive sport practice in enhancing self-perceived psychophysical well-	N=100 Paralympic athletes N=100 affected by impairment, which do not practice	Swimming	Psychological General Well-Being Index and the Short Form indices	Possible positive psychophysical benefits to competitive sport practice for young people affected by physical or intellectual Impairment.	Poor

	being of some select participants	competitive sport Disabilities: Physical				
Richardson et al. (2017) **United Kingdom**	Respond about psychosocial impact does participating in sport have at an individual level and impact of participating in sport have in challenging cultural perceptions of disability	N=16 (14 males and 2 females) M age 29 years (age range 18–40) Disabilities: Physical	Wheelchair Tennis	Semistructured interview	Wheelchair tennis players perceived their participation in sport enhanced their psychosocial well-being. Three broad themes emerged from analysis of the interviews; (1) developed transferrable skills, (2) perceived personal growth and (3) benefits of an athletic identity.	Good
Saphiro and Malone (2016) **U.S.A.**	Examined the relationship between athlete and parent perceptions of health related quality of life (HRQoL) and the relationship between the athletes' perceived HRQoL and subjective exercise evaluations.	N=70 athletes (47 males and 23 females) (M age=15, SD =2.92) Disabilities: Physical	Swimming (n 5 3), wheelchair basketball (n 5 23), wheelchair handball (n 5 32), and a weekend multi sports program (n 5 12	Pediatric Quality of Life Inventory (PedsQL) Subjective Exercise Experiences Scale (SEES)	Athletes with disabilities reported higher perceptions of HRQoL than their parents reported for them on physical, emotional and social functioning subscales with moderate to high effect sizes. Positive well-being subscale from the SEES was significantly related to overall HRQoL and was a significant predictor of overall HRQoL.	Good
Shapiro and Martin (2014) **U.S.A.**	Examine athletic identity, affect, and peer relations of youth athletes with physical	N=36 (27 males and 9 females) M age =16 Disabilities: Physical	Swimming Wheelchair basketball Wheelchair handball	Private-Public Athletic Identity Scale, the Positive and Negative Affect Schedule,	Participants reported stronger private athletic identity individual item scores compared with a public athletic identity and expressed	Good

	disabilities and selected relationships among these variables.		Multipsport program	The Peer Relations Scale	much positive affect and low negative affect. They also expressed strong peer relations. A significant relationship between positive affect and peer relations existed.	
Sikorska and Gerc (2018) **Poland**	To describe selected aspects of good life in Polish paralympic athletes in the light of positive psychology	N =30 disabled athletes (M = 26.5 years of age) N control group =30 healthy young adults (M = 25.9 years of age) Disabilities: Physical	Skiing, cycling, swimming, fencing, basketball	The You and Your Life Questionnaire The Resilience Scale for Adults by Friborg et al. (RSA) The Satisfaction with Life Scale (SWLS) Personal Values List (LWO)	A statistically relevant difference between the two groups can be identified with regard to resilience, concerning the structured style factor and with regard to courage in the level of the endurance factor. Disabled athletes choose the following as highly assessed values: being useful to, courage and firmness.	Fair
Swanson et al. (2008) **U.S.A.**	This study explored relationships among four sources of motivation and six forms of social support	N=19 wheelchair athletes,(33 male and 60 female) M age = 19.79, SD = 4.93 Disabilities: Physical	Wheelchair Basketball	Survey	Importance of social support types differed according to skill level, playing level, years played, and future playing intentions.	Good

All studies presented followed a cross-sectional methodology. By analysing the table, we can see that nine studies were classified as "poor", seven studies as "fair" and twelve studies as "good". No article was classified as "excellence.

2.4.3. Origin

Through the systematic review process, we identified twenty-seven studies: twelve from Europe (Italy (Giovanni et al., 2016; Puce et al., 2019), Ireland (Haslett et al., 2017), UK (Aitchison et al., 2021; Crawford et al., 2015; Powell & Myers, 2017; Richardson et al., 2017), Poland (Sikorska & Gerc, 2018), Portugal (Mira et al., 2022), Turkey (Dursun et al., 2015), Ukraine (Kokun en al., 2018; Kokun et al., 2020)), ten from North America (USA (Machida et al., 2013; Atkinson & Martin, 2020; Martin et al., 2015; Martin et al., 2020; Saphiro & Martin, 2014; Saphiro & Malone, 2016; Swanson et al., 2008) and Canada (Downie et al., 2008; Hamdani et al., 2019; Monton et al., 2022), three from South America (Brazil (Cardoso & Sacomori, 2014; Cardoso et al., 2018) and Chile (Porto et al., 2016)), one from Asia (Indonesia (Mudjanto et al., 2017)) and one from Oceania (Australia (Macdougall et al., 2016)).

2.4.4. Sports Participants

The samples of the studies reviewed include the following groups of sports: three from wheelchair basket (Cohn et al., 2009; Martin et al., 2015; Swanson et al., 2008), three from Swimming (Aitchison et al., 2021; Giovanni et al., 2016; Puce et al., 2019), three from Wheelchair Rugby (Atkinson & Martin, 2020; Haslett et al., 2017; Machida et al., 2013), one from Ice Skating (Dursun et al., 2015), one from Wheelchair Tennis (Richardson et al., 2017) and seventeen from multiple sports (Downie et al., 2008; Cardoso & Sacomori, 2014; Cardoso et al., 2018; Crawford et al., 2015; Downie et al., 2008; Hamdani et al., 2019; Kokun en al., 2018; Kokun et al., 2020; Macdougall et al., 2016; Martin et al., 2020; Mira et al., 2022; Monton et al., 2022; Mudjanto et al., 2017; Porto et al., 2016; Powell & Myers, 2017; Saphiro & Martin, 2014; Sikorska & Gerc, 2018). At least nine samples are from Paralympic athletes.

2.4.5. Evaluation Protocols/Instruments/Techniques

The studies analysed used different instruments for the same variables, interviews, questionnaires, validated scales and adapted scales.

The main objective of this study was to identify and understand what has been studied about well-being, resilience and social support in disabled athletes practicing a sport

modality. The results confirm that these variables have been the subject of attention by researchers, especially in the last decade.

Of the three variables, we notice that well-being is the most studied (Aitchison et al., 2021; Atkinson & Martin, 2020; Crawford et al., 2015; Downie et al., 2008; Dursun et al., 2015; Giovanni et al., 2016; Hamdani et al., 2019; Haslett et al., 2017; Kokun et al., 2018; Kokun et al., 2020; Macdougall et al., 2016; Martin et al., 2020; Mira et al., 2022; Mudjanto et al., 2017; Puce et al., 2019; Richardson et al., 2017; Saphiro & Martin, 2014; Sikorska & Gerc, 2018), either when it is analysed individually or in combination with other variables.

Our research resulted in 21 studies that study well-being, 9 studies that study resilience and 12 studies that study social support, of athletes with disabilities. Together, well-being and social support is studied in 8 studies, well-being and resilience in 6 studies, resilience and social support in 3 studies and only 2 studies study the three variables together.

2.4.6. Well-being

All studies that studied well-being revealed positive perceptions between the sport practice of disabled people and this variable. In the analysed articles, well-being was studied in several dimensions and several domains were evaluated such as well-being (Atkinson & Martin, 2020; Downie et al., 2008), emotional well-being (Giovanni et al., 2016), occupational well-being and spiritual well-being (Giovanni et al., 2016), psychological well-being (Aitchison et al., 2021; Haslett et al., 2017; Kokun et al., 2020; Richardson et al., 2017), subjective well-being (Macdougall et al., 2016; Martin et al., 2015; Martin et al., 2020; Mira et al., 2022; Saphiro & Martin, 2014; Sikorska & Gerc, 2018), physical well-being (Puce et al., 2019), quality of life (Atkinson & Martin, 2020; Crawford et al., 2015).

In the study of the perception of well-being in children and young people with physical disabilities practicing sport, positive perceptions were observed in all domains, including the children with disabilities showed higher values of perception of well-being than their parents. These results are extremely important and should be taken into account as it is the parents who make decisions regarding their children's practices, and it is very important to be aware of this detail (Craig, 2012).

In terms of psychological well-being, the positive impact of practicing sport on athletes with disabilities is consistent (Haslett et al., 2017; Kokun et al., 2018; Kokun et al.,

2020; Mudjanto et al., 2017; Puce et al., 2019; Richardson et al., 2017). The perception of psychological well-being seems to have a negative correlation with increasing age and persons with congenital disabilities showed higher well-being scores compared to persons with an acquired disability. This may be due to greater difficulty in adapting to and accepting their own disability (Puce et al., 2019). However, in these cases, this difficulty was mitigated by sport in competition, as in the Paralympic group the scores of athletes with congenital and acquired disabilities were similar (Puce et al., 2019). Paralympic athletes showed results in line with the standards of the general population. They claim that this is due to sport opportunities. All components of psychological well-being of paralympic athletes are significantly higher than students with disabilities who do not participate in sport (Kokun et al., 2018). Psychological strength is the most important factor supporting self-realization. On the other hand, they determined that two of the four indicators of self-realization of these athletes are significantly related to the indicators of psychological well-being, purpose in life and meaning in life (Kokun et al., 2020).

Considering the importance and focus of our study on subjective well-being, it was important to notice the positive impact of this variable in the various studies (Macdougall et al., 2016; Martin et al., 2015; Martin et al., 2020; Saphiro & Martin, 2014; Sikorska & Gerc, 2018).

Adapted sport presents itself as an enhancer of well-being in athletes with physical disabilities. In studies that analysed subjective well-being, athletes express high positive affect and low negative affect (Mira et al., 2022; Shapiro & Malone, 2016), as well as a significant relationship between positive affect and a strong relationship with peers (Shapiro & Malone, 2016). High levels of life satisfaction have been associated with playing sports and the experiences provided (Martin et al., 2015; Martin et al., 2020; Mira et al., 2022; Sikorska & Gerc, 2018). These results reinforce the importance that the practice of sports seems to have on the perception of subjective well-being, both in its cognitive dimension (satisfaction with life) and its emotional dimension (positive and negative affect) and are in line with what has been reported in the literature (Downward & Rascuite, 2011; Ku et al., 2007).

Although the levels of well-being were perceived to be gradually positive as the athletes increased their level of competition, they also concluded that they had wellbeing needs, as if an interaction between physical pain, emotional regulation, lack of purpose outside of sport and lack of self-acceptance. Others reported negative emotions,

frustration, bitterness, and uncertainty, which may have to do with the fact that they are elite athletes, who feel poorly supported and afraid of losing their career because they do not have the financial capacity to train as they would like. If these athletes reported emotional unbalance as a need for wellbeing at the end of a major competition, such as the Paralympic Games, with feelings of loss, lack of guidance and depression, it was also perceived that when strengths of well-being were manifested, they were associated with personal growth, optimism, strong social support networks and contribution to various communities. This personal growth and optimism have been related as a result of life satisfaction, with the ability to deal with what life provides in a positive way (Macdougall et al., 2016).

These results support our belief in the importance of adapted sport in contributing to well-being in people with disabilities.

The most common limitations of the studies analysed in this systematic review are that they include a restricted group, such as participants from a single sport or athletes from a single country or state (Aitchison et al., 2021; Crawford et al., 2015; Martin et al., 2015; Saphiro & Martin, 2014; Swanson et al., 2008), and no experimental studies were found for the well-being variable. It is suggested that in future investigations, comparison of people with and without motor disabilities, other types of disabilities, other sports, analyzing the existing differences as well as experimental studies should be considered (Swanson et al., 2008), to evaluating the impact of sports practice on the variables.

2.4.7. Resilience

Satisfaction with life has been studied with other variables such as resilience, being observed a positive relationship between the two variables. In the analysed studies, it is a consistent conclusion that athletes with higher levels of resilience have higher life satisfaction (Martin et al., 2015; Martin et al., 2020; Sikorska & Gerc, 2018). Resilience is mentioned as a significant predictor of life satisfaction and sport involvement (Martin et al., 2020).

Athletes with disabilities who play sports have demonstrated high levels of resilience qualities: life satisfaction, optimism, resilience, and social focus (Sikorska & Gerc, 2018).

Resilience has been widely studied as a quality present in people with disabilities in the sense that they are people with resources that allow them to protect themselves and

thus overcome the adverse effects of exposure to risk (Craig, 2012) and, in the case of this systematic review, who practice sport (Atkinson & Martin, 2020; Cardoso & Sacomori, 2014; Machida et al., 2013; Martin et al., 2015; Martin et al., 2020; Mira et al., 2022; Porto et al., 2016; Powell & Myers, 2017; Sikorska & Gerc, 2018).

Individuals with spinal cord injury and myelomeningocele (spina bifida) showed higher levels of resilience compared to the lower resilience observed in people with Cerebral Palsy. This result can be explained by the functionality existing in each disability. Thus, athletes who presented high levels of resilience showed higher levels of quality of life (Cardoso & Sacomori, 2014). Higher levels of resilience were observed in people with disabilities, especially correlated with their own relationship with their body and sexual esteem. They concluded that sport has the ability to improve athletic identity and self-esteem, causing people with disabilities who participate in sport to develop self-confidence to face and cope with their own disability and its challenges (Porto et al., 2016). The development of resilience in athletes with spinal cord injury is a multifactorial process that involves preexisting factors and experience, unpleasant emotions, various types and sources of social support that generate opportunities and special experiences that lead to different cognitive and behavioural strategies and, consequently, motivation to adapt to change (Macdougall et al., 2016; Machida et al., 2013).

We observed that paralympic athletes, as a rule, are conscious that their ability to overcome difficulties is related to their physical and mental experiences and challenges related to disability. They consider that the development of these resilient characteristics and ability to cope with physical and emotional pain comes from the constant exposure to pain and stress experienced (Powell & Myers, 2017). The Wheelchair Tennis athletes who participated in the study by Richardson et al. (2017) highlighted an important detail. Participation in this sport strengthens one's resilience which they can then transfer off the court. By overcoming challenges as players, it allows them to develop resilience which they can apply in their daily lives.

Like the well-being variable, we noticed that no experimental study on resilience was found in the present review.

In the studies reviewed, we found some limitations in the study of resilience, such as the different ways and different moments of resilience assessment between studies, resilience not being measured in relation to an adverse event, some researchers see limited value in assessing resilience in the absence of an adverse situation (Martin et

al., 2015; Martin et al., 2020). And, also, the condition of the athlete's disability, congenital or acquired, may influence resilience levels (Machida et al., 2013). Samples with multiple sports included may make it difficult to generalise findings due to the nature and differences between the specific sports (Powell & Myers, 2017).

Future studies may assess resilience by type of disability, congenital or acquired and, when acquired, by the relationship with the time it was acquired, as it may be diferent depending on the condition and context.

2.4.8. Social Support

We perceived that self-esteem and social support have a reciprocal relationship, low self-esteem is associated with not seeking support and greater tendency to misconduct. Involvement in sport for people with intellectual disabilities has added value by acting as an intervention to increase resilience (Crawford et al., 2015). Athletes who have higher levels of resilience and social support show more commitment to their sport (Cardoso & Sacomori, 2014).

There is a consensual agreement on the importance of social support, mainly from family, friends and coach (Giovanni et al., 2016; Machida et al., 2013; Mira et al., 2022; Monton et al., 2022; Swanson et al., 2008). In this systematic review, the first study to address the issue of social support was prepared by Swanson et al. (2008). They reported that social support is essential to build a teamwork that provides support in the various challenges and tasks inherent and adjusted to the characteristics and needs of the athlete, so that they can be successful (Swanson et al., 2008). Social support is identified as one of the most important factors in dealing with challenges and recovering from adversity, it is fundamental to the process of developing resilience. The sources of social support are multiple, from family, therapists, colleagues, coaches, among others (Machida et al., 2013).

Sport experiences provide an improvement in social skills, which in turn result from the relationship of well-being and social support. The efforts and reinforcing approval they receive from coaches, parents and peers provides athletes with a sense of social acceptance (Giovanni et al., 2016; Mira et al., 2022).

Athletes who experienced higher levels of social support inside and outside of sport competitions showed higher levels of engagement with their sport (Atkinson & Martin, 2020).

Recently, Aichtinson et al. (2021) developed the model "The Podium Illusion" where they comprehended twenty-five forms of support mentioned by athletes with disabilities. Of the various supports mentioned, they highlighted the importance of the vital role of "staff" in enhancing their training and performance, from coaches, psychologists, physiologists, nutritionists, biomechanists, etc. Family, friends and other performance agents were associated with the necessary and indispensable support by the provision of mental health care and overall happiness. This assurance of well-being provided allowed a perception of improvement in the athlete's performance. The coach was valued as an inspirational figure of motivation, providing improvements in levels of self-esteem and well-being, resulting in improved overall performance. The strong relationship with the coach is extremely important for these athletes.

The results found in the analysed studies are significantly important. There is a consensus that social support from family, friends and coaches has a decisive impact on the sport practice of athletes with disabilities (Aitchison et al., 2021; Atkinson & Martin, 2020; Crawford et al., 2015; Monton et al., 2022; Mudjanto et al., 2017; Swanson et al., 2008). It is suggested that it is beneficial to analyse the coaches' perception of the social support of their athletes (Monton et al., 2022).

One of the limitations in studying social support is the diversity of assessment tools given the various components and characteristics of social support. Future studies should focus on only one instrument or should carry out subgroup analyses. The timing of the assessment of social support can be considered a limitation (Monton et al., 2022). As with the study of resilience, the athlete's disability status, congenital or acquired, may influence levels of social support (Powell & Myers, 2017). At the same time, future studies may assess social support by type of disability, congenital or acquired, and when acquired, by the relationship with the time it was acquired and respective needs.

Furthermore, it seems pertinent that future studies focus on the relationships that can be established between these all variables, particularly regarding adapted sports athletes (for example, the analysis of the effect that social support and resilience can have on the well-being of athletes).

2.5 Conclusions

From the analysis of the studies included in this systematic review, we can conclude that sport seems to have a positive role in the well-being of athletes with disabilities in the various domains.

All studies that studied well-being revealed positive perceptions between the sport practice of disabled people and this variable.

At the same hese studies confirm and strengthen the relationship between life satisfaction and resilience, in the sense that athletes with higher levels of resilience have greater life satisfaction. Consequently, they also present greater involvement and commitment to their sport.

We can observe that there are several studies that strengthen the importance of the practice of sports as a significant social opportunity, which help in the resilience process of people who faced adverse situations derived from their own disability.

We also concluded that social support for these athletes is extremely relevant for the improvement of their career. Family, friends and other social agents were associated to the indispensable support for the possibility of the sports practice. These results confirm that the participation of educated and trained people to support the development of of these athletes' careers will have, consequently, positive results.

We consider these results important to support and encourage the development of adapted sport, which should be taken into consideration by policymakers and other organizations, due to the positive impact it has in contributing to levels of well-being, resilience and social support resources in people with disabilities, contributing to the improvement of their personal development, their quality of life and their integration in society.

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Chapter 3 – Paper II: Tokyo 2020: A Sociodemographic and Psychosocial Characterization of the Portuguese Paralympic Team

3.1 Abstract

The importance of practicing sports and its impact on the quality of life of people with disabilities is fundamental. Characterizing subjective well-being, resilience, and social influence in the practice of adapted sports, namely in those who participate in elite sport in Portugal, is truly important to support a set of initiatives to promote higher levels of practice. Thus, this study describes the Portuguese delegation at the Tokyo 2020 Paralympic Games through sociodemographic and psychosocial (positive and negative affect, life satisfaction, resilience, and social support) variables.

The study involved 31 of the 33 athletes of the Portuguese Paralympic team aged between 15 and 58 years (34.45 ± 11.7 years), with 21 men and 10 women. Individual-level sociodemographic data gave us a clear insight into the reality of adapted sport in Portugal. The high values of life satisfaction, high positive affect and low negative affect, as well as high levels of resilience and social support seem to be important variables for these athletes. The data from the present study highlighted the importance of understanding the characteristics of Paralympic athletes, in order to better understand the reality of Paralympic sport in Portugal

Keywords: Paralympic Games; Tokyo 2020; sociodemographic; well-being; resilience; social support

3.2 Introduction

One of the problems for people with disabilities is that from childhood they are not encouraged to have active lives, ending up living sedentary lives with significant health problems and barriers to physical activity (Saphiro & Martin, 2010). Therefore, the physical inactivity of this population could increase the risk of developing secondary

conditions, such as loneliness, fatigue, obesity (Laskwoski, 2012). A healthy lifestyle is as essential for promoting health and well-being and disease prevention for people without disabilities as for people with disabilities. Therefore, several authors (Medola et al., 2011; Slater & Meade, 2004) showed the importance of sports practice in people with disabilities. In this regard, well-being has been one of the most studied variables. It gives people a better feeling of self-confidence, enthusiasm, leadership skills, and sociability. Happy people tend to be healthier, more efficient, successful, and they tend to volunteer in society (Diener et al., 2000; Ryan & Deci, 2001). Subjective well-being emerges as a subjective approach to quality of life (Albiquerque & Troccóli, 2004; Diener, 2000). People evaluate their life based on important domains (e.g., work, marriage, and health) or the affections and emotions they feel (e.g., joy, anxiety, and depression) (Diener, 1994; Diener, 2000; Diener et al., 1999; Diener & Ryan, 2009; Moraes et al., 2012). Subjective well-being of the hedonic premise has a complex and multifaceted nature, and is divided into three components: satisfaction with life (cognitive), positive affect, and negative affect (Diener et al., 1999; Diener et al., 2003; Ryff & Keyes, 1995). Cognitive assessments are characterized by life satisfaction and a sense of personal achievement, and affective appraisals assume the presence of positive affect (i.e., positive emotions and moods) and the absence of negative affect (i.e., negative emotions and moods) (Dias et al., 2008; Diener, 2000; Giacomoni, 2004; Ryan & Deci, 2001; Waterman, 1993). Positive affect is characterized by hedonic contentment experienced at a given moment, based on the description of an emotional state rather than on a cognitive judgment. In contrast, negative affect is characterized by a transitory state that includes negative experiences. In its turn, life satisfaction is a cognitive assessment that the person makes of certain areas of their life, depending on the comparison of real-life circumstances with what they define as a model (Albuqerque & Troccóli, 2004; Diener et al., 2003). Studies (Caddick & Smith, 2014; Hogan et al., 2015; Mack et al., 2012; Smith et al., 2011) revealed the positive associations between the practice of physical activity and increased well-being (Downward & Rascuite, 2011; Ku et al., 2007; Ku et al., 2014; Moraes et al., 2012; Olsson et al., 2014). Some authors (Albrecht & Devlieger, 1999; Chow et al., 2005; Emerso net al., 2009) showed the positive relationship between sports practice and subjective well-being in the disabled population. Well-being has been studied because of its role in actively coping with adversity (Ryff, 2014). Personal growth often involves experiences with obstacles, failure, and disappointment. Incidents such as these are necessary to find internal strengths and reintroduce resources while at the same time allowing one to become aware of one's own limitations and vulnerabilities. This theme

leads us to the study of resilience. In line with that, Fletcher and Sarkar (2012) define resilience as "*The role of mental and behavioral processes in promoting personal assets and protecting the individual from the potential negative effect of stress*" (p. 675). Reacting positively to adversity depends on the hardships they have been subjected to and their respective adaptation (Morgan et al., 2013). Resilience is characterized as a dynamic process influenced by the environment and how the person relates to it, which allows for identifying the best attitude in each context (Angst, 2009). With the increasing development and importance of the concept of resilience, many recent investigations have emerged within the scope of regular and adapted sports (Bejan & Tonita, 2013; Besharat, 2010; Cevada et al., 2012; Fontes & Brandão, 2013; Fletcher & Sarkar, 2012; Fletcher & Sarkar, 2013; Lu et al., 2016; Neves et al., 2015; Nicholls et al., 2016; Sarkar & Fletcher, 2014). Participation in sports by people with disabilities has implications for resilience, access to social support, opportunities, and meaningful social experiences for people who faced traumatic injuries (Machida et al., 2013). Athletes with disabilities show significant levels of resilience (Cardoso & Sacomori, 2013; Machida et al., 2013; Sikorska & Gerc, 2018). Due to inherent characteristics and problems, people with disabilities seem to be a vulnerable risk group for mental disorders such as depression, anxiety, stress, frustration, lack of motivation, and social impairment (Ferreira & Fox, 2008; Sahlin & Lexell, 2015). Many of the sports initiated during rehabilitation can be continued for pleasure throughout the life of the person with a disability. Pleasure is the primary motivational factor in the willingness to continue in sport (Martin, 1996). People with physical disabilities who have participated in adapted sports have higher life satisfaction compared to people with physical disabilities who do not participate in any adapted sport (Blauwet & Wllick, 2012; Frank et al., 2013; Yazicioglu et al., 2012). People with disabilities who try to have an active lifestyle accept their disability better than inactive people; sport presents itself as a tool that promotes health, quality of life, social integration, self-confidence (Blauwet & Wllick, 2012; Frank et al., 2013; Misener & Darcy, 2014), satisfaction, quality of life, and self-esteem (Blauwet & Wllick, 2012; Frank et al., 2013; Misener & Darcy, 2014; Javorina et al., 2020). Sport decreases the suicidal tendencies of people with disabilities and promotes a more independent and motivated attitude (Blauwet & Wllick, 2012; Frank et al., 2013). Despite all the benefits mentioned, access to sports for people with disabilities is difficult due to the various barriers, which include a lack of understanding and awareness about inclusion, few opportunities and limited programs, inaccessibility of facilities, transportation difficulties, and lack of information and resources (Misener & Darcy, 2014). The support given to people with

disabilities influences the promotion and maintenance of physical exercise in sports facilities (Javorina et al., 2020). Social support shows the person that they are loved, cared for, esteemed, and an integral part of a network of mutual obligations (Cobb, 1976). The origin of social support can be considered informal from family, friends, neighbors or social groups that accompany them daily, or formal when it comes from social institutions such as hospitals, doctors, social workers, and other specialists (Dunst & Trivette, 1990).

In studies that have been carried out on this topic, especially among young people, social support has been considered to be a positive influence in the sporting context (Dunst & Trivette, 1990). Sheridan et al. (2014) conducted a systematic review of social support in youth sports. They concluded that coaches, parents, and peers impact the development of youth sports through their positive influence on several factors. They also found that social support, over time, changed negatively, which can harm the athlete in both elite sport and physical activity (Sheridan et al., 2014). This makes us aware of this need, properly in adjusting the athlete's support pattern throughout the career. More recently, Ascione et al. (2018) referred to sport as a fundamental context in supporting the person with disabilities, contributing to enhancing and helping psychological issues that allow the development of their abilities. Through the practice of sports, the person with a disability and the others around them experience and assess their limits, using them positively as resources and qualities, accepting the difficulties. In this regard, Martin (2018) said that there are more studies with elite athletes, namely in adapted sports, since there is a significant difference between the number of studies published in regular sport than adapted sport. In addition, the variables under analysis in the present study (e.g., social support, well-being, and resilience) are important variables, particularly for this type of population, due to encouraging the participation and involvement of athletes using the strategies presented by Hellison (1995). This highlights the following: provide options for the activity to be performed (including the possibility of temporarily stopping the task/activity); allow the choice of the pace of participation, intensity and number of attempts; individualize and optimize the coach–athlete relationship through feedback, challenges and proposed activities. Moreover, Martin and Wheeler (2011) stated that sport is an appropriate environment for these subjects to develop their own mechanisms in terms of resilience, since sometimes they are not accepted in other domains, and through sport they have the possibility to promote and develop their own skills, abilities, and personal resources, and consequently improve their coping strategies. Thus, the present study aimed to characterize the Portuguese delegation at

the Tokyo 2020 Paralympic Games through sociodemographic (age, gender, profession, education, and sports practice) and psychosocial variables (positive and negative affect, life satisfaction, resilience, and social support).

3.3 Materials and Methods

3.3.1. Study design and Procedures

With the approval of the study by the ethics committee of the University of Beira Interior (CE-UBI-Pj-2018-076), there was initial contact with the Paralympic Committee of Portugal, to whom the study purpose was explained. Authorization was requested to carry it out with the Paralympic athletes who participated in the Tokyo 2020 Paralympic Games. Data were collected from questionnaires just after participation in the Tokyo 2020 Paralympic Games, between October and November 2021. The procedure explains the study's objectives, and guarantees the principle of confidentiality. Informed consent was given by the participants, prior to data collection. Therefore, each athlete was provided with a link to access a Google Form, in which authorization was requested to carry out the study. The use of an online questionnaire was intended to facilitate the participation of all Portuguese Paralympic athletes, including athletes with visual impairments and athletes with intellectual disabilities, who in turn had the collaboration of coaches for this purpose. Regarding the completion of the questionnaires by the participants with intelectual disabilities (n = 4), the clubs were contacted in order to provide support in reading and understanding them, namely through specialists with training for the application of the questionnaires.

3.3.2. Participants

A total of 31 out of 33 athletes of the Portuguese Paralympic team aged between 15 and 58 years, with a mean age of 34.45 ± 11.7 years, with 21 men (36.29 ± 11.49 years) and 10 women (30.60 ± 11.84 years). Respondents were fully informed about the aim of the study. They were also told that they could stop at any time. Participants did not receive compensation for their participation.

3.3.3. Variables/Instruments

The sociodemographic questions were developed specifically for this study, having been reviewed by four experts. The other four questionnaires are validated instruments for the Portuguese population, evaluating four domains: sociodemographic data, life

satisfaction, positive and negative affections, resilience, and social influence. To access information regarding the number of clubs in which there are sports modalities adapted for practice in Portugal, we accessed the website of the Portuguese Paralympic Committee, which contains a platform (Sport Inclusion Map) that allows us to find this information by searching by sport or geographical área (COP, 2022).

To assess the Social Support perceived by athletes with disabilities, a scale based on the recommendations of Jago et al. (2009), adapted with the objective assessment of children's perceptions of friends and parental influences on physical activity, was divided into four dimensions: coach, parents, friends, and best friend. When asked about the support that the athlete has from their coach/parents/friends/best friend regarding exercise and sport ("encourages", "practices", "accompanies", and "talks"), athletes responded on a Likert-type scale, with five levels, ranging from 1 ("rarely") to 5 ("often").

Subjective well-being was assessed through Satisfaction with Life Scale (Diener et al., 1985). For the present study, the Portuguese version was used (Neto, 1993). This scale presents five items (1. "In most ways my life is close to my ideal", 2. " The conditions of my life are excellent", 3. "I am satisfied with my life", 4. " So far I have gotten the important things I want in life" and 5. "If I could live my life over again I would change almost nothing"), which are answered on a seven-point Likert scale, with 7 levels, ranging from 1 ("Strongly disagree") to 7 ("Strongly agree").

Positive and negative affect were evaluated through PANAS—The Positive and Negative Affect Schedule (Watson et al., 1988). The Portuguese version of PANAS (PANAS-VRP) (Galinha et al., 2014) was used in the present study. The PANAS-VRP presents 10 items (five items for positive affect: "inspired", "alert", "excited", "enthusiastic" and "determined" and five items for negative affect: "fear", "worried", "nervous", "scared" and "perturbed") that are answered on a five-point Likert scale which varies between 1 ("Not at all or very slightly") and 5 ("Extremely").

To assess resilience, the Brief Resilience Scale (BRS) (Smith et al., 2008), in the Portuguese version (Silva-Sauer et al., 2020), was used. This scale is composed of six items that are answered on a five-point Likert scale, as follows: ("1. I tend to recover quickly after difficult situations", "2. I find it difficult to cope with stressful situations", "3. I do not take much time to recover from a stressful situation", "4. I find it difficult to recover quickly when something bad happens", "5. I usually cope with difficult times

without much worry" and "6. I tend to take a long time to overcome problems in my life"), with five levels, ranging from 1 ("I totally disagree") to 5 ("I totally agree").

3.3.4. Data Analysis

Considering the aim of the present study, a descriptive analysis was employed via SPPS v.27 (IBM, Armonk, NY, USA). Based on the central limit theorem, a sample greater than or equal to 30 approximates a normal distribution and therefore is often considered enough for the central limit theorem to hold (Hair et al., 2019). In this regard, a descriptive analysis of location and central tendency measures (mean) and dispersion measures (standard deviation) were performed. In addition, in order to measure the associations across studied variables, a Pearson bivariate correlation was performed. Cohen's (1988) criterion was considered to interpret the magnitude of the correlation coefficients ($r < 0.3$ = low, $r > 0.3$ and 0.5 = high) and the significance level to reject the null hypothesis was set at 5% (Ho, 2014).

3.3.5. Results

The sample's sociodemographic characteristics that focus on the characterization of age, gender, disability, academic qualification, professional situation, type of sport, years of practice, weekly practice frequency, and training hours per week are presented in Table 1.

Table 2. Summary of the descriptive statistics for the sample's sociodemographic characteristics (n = 31).

Variables	*n* (%)	Mean ± SD
	31	
Age (Years)		34.45 ± 11.7
Gender		
Male	21 (67.7%)	
Female	10 (32.3%)	
Disability		
Motor	24 (77.4%)	
Visual	3 (9.7%)	
Intellectual	4 (12.9%)	
Academic qualification		
1st Cycle of Basic Education	1 (3.2%)	
2nd Cycle of Basic Education	1 (3.2%)	
3rd Cycle of Basic Education	5 (16.1%)	
Upper Secondary Education	17 (54.8%)	
Bachelor's degree	4 (12.9%)	

Undergraduate degree	1 (3.2%)
Master's degree	2 (6.5%)
Ph.D. degree	0 (0%)
Professional situation	
Student	9 (29%)
Public service	5 (16.1%)
Outsourced account	4 (12.9%)
Personal account	3 (9.7%)
Unemployed	1 (3.2%)
Retired	3 (9.7%)
Other	6 (19.4%)
Type of Sport	
Para Athletics	9 (29%)
Para Badminton	1 (3.2%)
Boccia	9 (29%)
Para Canoe	2 (6.5%)
Para Cycling	2 (6.5%)
Equestrian	1 (3.2%)
Judo	1 (3.2%)
Para Swimming	6 (19.4%)
Years of practice	
4 to 7 years	4 (12.9%)
8 to 11 years	11 (35.5%)
12 or more	16 (51.6%)
Weekly training frequency	
3 per week	4 (12.9%)
4 per week	3 (9.7%)
5 per week	3 (9.7%)
More than 5 per week	21 (67.7%)
Training hours per week	
2 to 6 h	6 (19.4%)
7 to 10 h	3 (9.7%)
11 to 14 h	8 (25.8%)
15 to 18 h	7 (22.6%)
19 to 22 h	4 (12.4%)
More than 22 h	3 (9.7%)

Note: SD, standard deviation.

As can be seen in Table 1, the results are based on 31 athletes from eight Paralympic sports. Most athletes had motor disabilities.

The most common academic qualification is secondary education, followed by the third cycle of basic education. The first cycle is usually from between 6 and 9 years old, the second cycle is usually from between 10 and 12 years old and the third cycle is usually from between 13 and 15 years old.

Regarding the professional situation, the distribution is more varied. Most are employed or students and a small percentage are unemployed.

In relation to years of practice, it can be noted that about half of the sample has been practicing for more than 12 years. In relation to the number of training sessions per week the majority, they train more than five times per week and the number of hours of training per week is quite variable.

Figure 1 shows the distribution of athletes according to their residence districts. Thus, the majority of athletes reside in the districts of Lisbon and Porto.

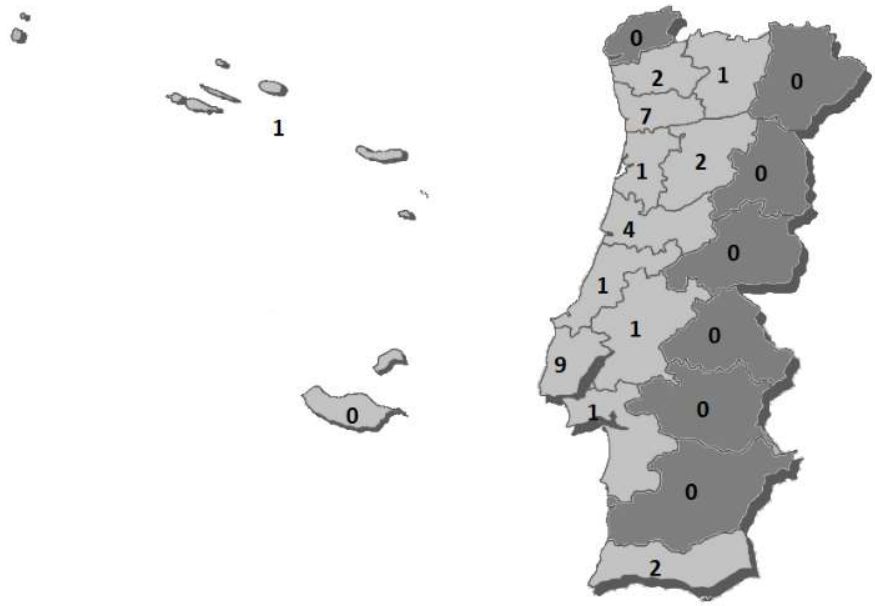

Figure 2. Distribution of athletes according to their districts in Portugal (light gray districts with athletes in the Tokyo 2020 Paralympic Games, dark gray districts without Paralympic athletes).

On the Portuguese Paralympic Committee website platform, we found 204 clubs with sports adapted to practice in Portugal (COP, 2022). With this data, Lisbon and Porto are the districts with the most clubs (Figure 2). Still regarding the geographical distribution, it is worth noting the asymmetry between the coast and interior of Portugal, where most clubs are located in the coastal area of the country.

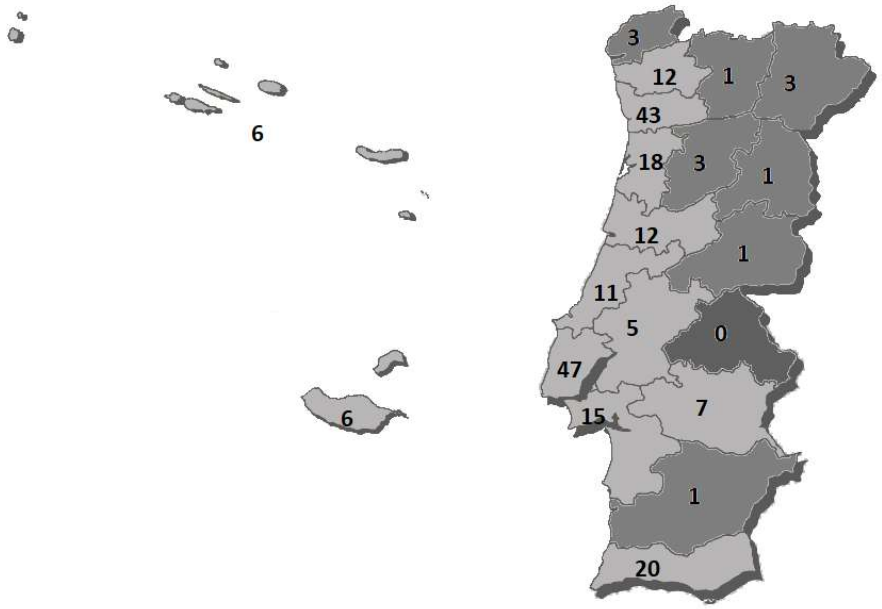

Figure 3. Distribution of adapted sports clubs by districts of Portugal.

The variables of satisfaction with life, positive affect, negative affect, resilience, and social influence were analyzed and are presented in Table 2. Our results show that athletes perceive a positive affect superior to negative affect. Regarding social support, the perception of support by the coach is the one with the highest value.

Table 3. Summary of the descriptive statistics for the sample variables (n = 31).

Variables	Mean		
	Mean ± SD	(95% CI)	Median (IQR)
Life Satisfaction	5.24 ± 0.97	4.88–5.59	5.00 (1.00)
Positive affect	3.96 ± 0.64	3.73–4.20	4.00 (0.60)
Negative affect	1.72 ± 0.64	1.48–1.95	1.60 (1.00)
Resilience	3.73 ± 0.77	3.45–4.01	3.80 (1.00)
Social Support			
Coach	3.48 ± 0.58	3.26–3.69	3.50 (0.75)
Parents	2.55 ± 0.89	2.22–2.88	2.50 (1.25)
Friends	3.00 ± 0.76	2.72–3.28	3.00 (1.00)
Best Friend	2.83 ± 0.94	2.49–3.18	3.00 (1.75)

Notes: SD, standard deviation; 95% CI, confidence interval 95%; IQR, interquartile range.

Results for the association between different variables are summarized in Table 3.

The bivariate correlation was observed between life satisfaction and positive af-fect (medium), between positive affect with social support by the parents (high) and

between positive affect with social support by the friends (medium). Resilience displayed a negative and significant association with the negative affect (high).

Table 4. Bivariate correlations between variables.

	1	2	3	4	5	6	7	8
Life Satisfaction	1	-	-	-	-	-	-	-
Positive affect	0.47 **	1	-	-	-	-	-	-
Negative affect	−0.18	−0.05	1	-	-	-	-	-
Resilience	0.28	0.08	−0.53 **	1	-	-	-	-
Social Support								
Coach	0.08	0.37	0.06	0.01	1	-	-	-
Parents	0.13	0.51 **	−0.19	0.18	0.34	1	-	-
Friends	0.26	0.43 *	0.12	0.22	0.34	0.27	1	-
Best Friend	0.06	0.26	−0.15	0.12	0.30	0.23	0.62 **	1

**. $p < 0.001$; *. $p < 0.05$.

3.4. Discussion

The purpose of the present study was to describe the Portuguese delegation at the Tokyo 2020 Paralympic Games through sociodemographic (age, gender, disability, academic qualification, professional situation, type of sport, years of practice, weekly frequency, and training hours per week) and psychosocial variables (positive and negative affect, life satisfaction, resilience, and social support).

Thirty-three Portuguese athletes competing in eight sports participated in the 2020 Paralympics Games (CPP, 2022). We found that 32.3% are female athletes and 67.7% are male athletes regarding sociodemographic data. This difference must, however, be analyzed considering that the number of women who practice sport or exercise regularly is lower than that of men (WHO, 2011). On the other hand, there are no significant differences between the number of men and women with disabilities in the world (EORG, 2018).

While the 2020 Olympics were near gender parity for the first time, there are still deeply rooted gender stereotypes in Paralympic sport. Indeed, there has been a gradual increase in female participation in the Olympic Games, from 11% in Rome 1960 to around 45% in London 2012. However, in the Paralympic Games, it has increased

much more slowly from a higher base of 21% in the Heidelberg 1972 Paralympics to 35% compared in London 2012 (Darcy, 2018). As early as 1995, Olenik et al. (1995) noted that women with disabilities who aspire to reach the highest levels of sports performance face double discrimination — disability and gender discrimination.

When we analyze the weekly training hours of these athletes, the answers are pretty variable. Interestingly, the three athletes who train the most hours per week (more than 22 h) are in the same sport: swimming. Similarly, athletes who train the fewest hours per week (between 2 and 6 h) are boccia players. In a study conducted by Fagher et al. (2020) with the Swedish Paralympic team, the average hours trained is 9 h per week.

As a suggestion for a future study, it would be interesting to analyze data on the number of weekly training hours of the other Paralympic teams for comparison.

Our results showed another important fact: only one athlete presents himself in the condition of unemployed. Few studies have been conducted on the elite athlete with a disability to the best of our knowledge. It is interesting how Bundon et al. (2018) address this topic, noting that the research that has been done to understand how and why elite athletes with disabilities end their sporting careers. The research was conducted in the 1990s and is already outdated since the context has changed. There was concern about losing their income from the sport and there was little certainty about professional integration post-career in sport, mainly due to lack of work experience. These authors also found that the progression of certain types of disability may force some to leave the sport earlier than anticipated (Bundon et al., 2018). They discuss how previous gen-erations of Paralympians struggled to find time to train while working or studying, paying the costs of their participation in sport. Currently, they have access to funding but face the difficulty of professional integration post-sports career (Bundon et al., 2018 ; Wheeler et al., 1996; Wheeler et al., 1999). The report of the Disability and Human Rights Observatory (ODDH, 2021) showed a trend of growth of workers with disabilities in the public and private sectors.

We also noticed that seven districts do not present any athletes and, as we can see in the image in darker gray, they are primarily inland districts (Viana do Castelo, Bragança, Guarda, Castelo Branco, Portalegre, Évora and Beja). This may reflect the scarce supply and accessibility of adapted sports in the interior area at a national level. With the presented data, we can see that the districts that have more clubs with adapted sports disciplines are the districts with more athletes in the Paralympic Games: Porto and Lisbon. The islands are represented by the Azores with one athlete, and

Madeira had no athletes participating in the Tokyo 2020 Games. Darcy (2018) noted that resource rich nations dominate medal-winning nations; he concluded that a more con-certed effort must be made to help resource-poor governments strategically improve their participation rates in adapted sport. We can perceive our country's needs at the level of the most resource poor districts, be they structural or human. This is a robust practical implication of this work: knowing and identifying where the athletes are coming from and comparing this with the number of clubs is another contribution to the implementation of policies to promote adapted sports practice in our country. A competitive environment requires the elaboration of strategic actions that allow the achievement of pre-established objectives. It would be interesting to understand this reality by applying the model of Bosscher et al. (2006) who designed the SPLISS (Sports Policies Leading to Sports Success) model, which compares and measures the effec-tiveness of national sports policies by training. They defined the critical factors that must be carried out for a country to increase the chances of international sports suc-cess. As we have seen, the most common academic qualification is secondary educa-tion, followed by the third cycle of primary education. Although the study conducted by the Directorate-General for Education and Science Statistics (DGEEC) (ODDH, 2021) showed that in Portugal, the number of students with disabilities attending higher education increased by 57% compared with 2017/18, in our sample, the number of athletes with a university education is still far from the desired values. These results help us reflect on the need to encourage academic careers, making it possible to reconcile them with the dual career of sports training. The dual career aims to give the high-performance ath-lete the possibility to combine, in a fair way, a sporting career with an academic career (Picamilho et al., 2021).

Saphiro and Pitts (2014), in their research, concluded that sports management scholars and practitioners do not identify sport, leisure, recreation and physical activity for the disabled as part of the business of the sport industry. Less than one-tenth of all published articles address sport for disability. There is a lack of information across the curriculum areas of sports management and in sport for people with disabilities. These authors suggest scholarship and advancement of studies in disability sport in sport business management.

It is important to increase the opportunities for disabled people through education, training, employment, transport, sports, and recreational activities. Therefore, investing in education centers in order to promote the practice of sports and its pro-longed practice in these people are key issues not only in sports policy, but must be the position of sports in social policy in general (Walker & Hayton, 2017).

The overall sample verified that athletes have high values of satisfaction with life, high positive affect, and low negative affect. These results seem to align with previous studies, which concluded that Paralympic athletes have interactions with others, disabled and non-disabled athletes, that give them opportunities to establish new relationships and friendships, increasing life satisfaction (Ondrušova et al., 2013).

These results for subjective well-being are interesting; studies point to the fact that affect and life satisfaction allow for a significant increase in health, longevity, work, earnings, social relationships, and benefits to society (Ryan & Deci, 2001). Côté-Leclerc et al. (2017), in their study, found that the positive effect of adapted sport on the quality of their lives acts mainly through personal factors (behavior and health), social participation (interpersonal relationships) and the environment (societal perception and support of the environment).

Well-being gives people higher self-confidence, enthusiasm, leadership skills and sociability. Happy people tend to be healthier, more efficient, successful and they tend to volunteer more in society, businesses, and other organizations, individual and governmental, enabling them to increase performance (Diner, 2000; Ryan & Deci, 2001). Similar results were found by Hammond's study (Hammond, 2014) which analyzed these variables in Paralympic athletes and concluded that they represent a very high functioning group within the population, with high levels of subjective wellbeing. In other study, Silva et al. (2021) showed that the subjective well-being are positively affected by sport participation of athletes with disabilities.

We also found a high value for resilience. This data reinforces the literature that states athletes with disabilities show significant levels of resilience (Cardoso & Sacomori, 2013; Côté-Leclerc et al., 2017; Machida et al., 2013; Sikorska & Gerc, 2018). Hariharan et al. (2014) found that resilient people with disabilities had higher emotional intelligence and more positive perceptions of their environment. These positive perceptions of emotional resources allow people with disabilities to overcome barriers and difficulties. In their experiences, athletes face countless hours of training, often repetitive and with implications for stress levels, time to recover from injuries that prevent them from performing, and competitive anxiety with the agony of failure. For these reasons, athletes need physical stamina, talent, and mental toughness (Jones et al., 2002; Smith et al., 2011; Vallerand & Losier, 1999). Thus, they must possess a greater ability to cope with challenges and adversity.

In what concerns social support for physical activity or sport's practice, we verified that the coach has the highest value of the most influence on the athlete, followed by friends, best friends and, lastly, parents. In recent years, studies on social support have increased considerably; from family, friends, and coaches (Barefield & McCallister, 1997; Rosenfeld et al., 1989) to a variety of support staff in a multidisciplinary team (Burns et al., 2019; Gould et al., 1999), social support is essential for well-being, allows better integration in society and better achievement of goals. Banack et al. (2011), reinforce the importance of the relationship of the Paralympic athlete with the coach in the support of autonomy. Many of the athletes, depending on the disabil-ity, need the coach as an assistant in basic activities in training and in competition. Although in our study parental support appears last in degree of importance, Shapiro and Malone (2016) refer to family support as extremely important, especially in younger athletes. This result may have to do with the fact that the athletes are older than 16. Social support relationships are all important for access to sport by people with disabilities however, the higher the competitive level, the greater the social support relationships (VaezMousavia et al., 2021).

Our results showed that there is an association between life satisfaction and posi-tive affect, which is in line with the conceptual framework of subjective well-being (Diener, 2000; Diener & Ryan, 2009; Diener et al., 1985; Diener et al., 2003) and with some studies conducted recently (Busseri, 2018; Jovanovic & Joshanloo, 2021). The association between the positive effect and the social support of parents and friends reinforces the importance that this support seems to have in the emotional states of the athletes, confirming some of the evidence in the literature (Saphiro & Malone, 2016; VaezMousavia et al., 2021).

Regarding resilience and its negative association with negative affect seems to indicate a possible buffer effect of resilience for negative emotional experiences (Cohn et al., 2009; Ong et al., 2006; Ryff, & Singer, 2003). Although these associations are interesting, they need to be clarified in future studies.

Despite the importance of the present study, some limitations must be acknowledged and should be addressed in future studies. This study was conducted in Portu-gal, thus results cannot be generalized to other countries and contexts. It will also be very interesting to relate, in future studies, the psychological variables (e.g., well-being, resilience, social support) with demographic variables and with the variables of sports

practice (e.g., years of practice). However, this work may have an important contribution to understanding the reality of Paralympic sport in Portugal.

3.5. Conclusions

The sociodemographic (age, gender, profession, education, sports practice) and psychosocial (positive and negative affect, life satisfaction, resilience, and social support) variables could characterize the Tokyo 2020 Paralympic team. The disparity between the team's total number of men and women is still a reality. Training hours per week are pretty heterogeneous among athletes. The offer and accessibility to adapted sports at the national level are considerably lower in the inner part of the country.

In the sample, we found that Portuguese Paralympic athletes have high values of life satisfaction, high positive affect, low negative affect, and good levels of resilience. Additionally, our results showed that the coach has the most decisive influence on the athlete, followed by friends, best friends, and parents. The coach is indeed the most critical figure in this social influence.

These findings are important and could be considered for further analysis and evaluation of the reality of adapted sport in Portugal, supporting the idea that more public development policies are needed for people with disabilities to access adapted physical activity and sport.

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Chapter 4 – Paper III: Exploring the relationship social support, resilience and subjective well-being in athletes of adapted sport

4.1 Abstract

Sports participation of people with disabilities provide an improvement in their skills, especially on access to social support, which could improve resilience and well-being. This study aims to analyse the association between types of social support (parents, coach, friend and best friend), resilience and positive and negative affect, in 105 portuguese athletes with disabilities aged between 13 and 61 years (32 ± 12.35 years). Participants answered a short sociodemographic questionnaire, the portuguese version of the Positive and Negative Affect Schedule, and the Brief Resilience Scale, and a scale for assessing social support from parents, coach, friend and best friend. Social support provided by the best friend, coach, friends and parents had a direct effect on resilience and positive and negative affect. Results showed a positive and significant association between resilience and positive affect ($r=0.28$; $p=0.004$) and a negative association between resilience and negative affect ($r=-0.37$; $p\leq0.001$). A strong relationship was found between resilience and affect, with no relationship being verified between the sources of social support and resilience or affect, as hypothesized. For this group of athletes with disability, more than the social support they may have or may feel, resilience proved to be very important for the consequence of sports practice in terms of subjective well-being.

Keywords: Subjective well-being, resilience, social support, affect, disability.

4.2 Introduction

Sport is recognised as an essential in the education of children and young people, for the added value of physical and psychological condition that sport provides (Conroy &

Coatsworth, 2007; Macnamara & Collins, 2013). Likewise adapted sport promotes health, quality of life and social integration of people with disabilities (Blauwet & Willick, 2012; Frank et al., 2013).

The practice of sports by people with disabilities involves, in most cases, third parties (parents, friends, team-mates, coaches, among others). Social support for sport practice has proven to be fundamental. Social support is essential for well-being, it allows better integration into society and better goal realization (Banack et al., 2011). Social support refers to the providing of assistance, comfort and/or support to other people to help them cope with biological, psychological and social stress. This social support can come from any interpersonal relationship in an individual's social network (family, friends, colleagues, coaches, among others). It can be provided in a practical (e.g., doing tasks, providing advice), tangible (e.g., giving money or other materials) and emotional way (American Psychiatric Association, 2022). Social support means an exchange of resources that takes place between at least two people, the provider and the recipient, with the aim of improving the recipient's well-being (Shumaker & Brownell, 1984).

Previously studies showed a positive association between the practice and the social support of parents, which have been widely studied in children, adolescents and young people (Dowda et al., 2007; Ornelas et al., 2007; Beets et al., 2010; Edwardson & Gorely, 2010; Loucaides & Tsangaridou, 2017), as well as the social support of friends (Stewart, 1993; Rodriguez & Cohen, 1998; Loucaides & Tsangaridou, 2017; Cheng et al., 2014). These two sources of social support have been presented as essential in the practice of physical activity, however the role of support coming from friends seems to have more impacting influence in this context (Loucaides & Tsangaridou, 2017; Cheng et al., 2014). The Cheng et al. (2014) study reported that the physical activity of adolescents is directly associated with the physical activity of their friends. Friendship is considered an important source of social support and influence for physical activity. Those who do physical activity tend to make friends with those who do similar amounts of physical activity, eventually imitating behaviours, creating a mutually dependent relationship between physical activity and friendship networks (Haye et al., 2011). Recent studies have looked at the social support provided by the best friend and its influence on adolescent’s practical physical activity and perceived benefits (Martin & Smith, 2002; Martin, 2006; Stearns et al., 2018; Kandola et al., 2020; Monteiro et al.,

2021). On the other hand, in sports for people with disabilities context, social support is also considered to be a positive influence (Swanson et al., 2008; Machida et al., 2013; Crawford et al., 2015; Fiorilli et al., 2016; Haslett et al., 2017; Powell & Myers, 2017; Cardoso et al., 2018; Atkinson & Martin, 2020; Aitchison et al., 2021; Mira et al., 2022; Montonet al., 2022).

Coaches, parents and friends are extremely important for their positive influence on various factors. The coach has proven to be an indispensable source of social support, offering support and guidance that results in strong relationships (Greendorfer, 2002; Jones et al., 2002; Sheridan et al., 2014; Gillham et al., 2015; Lu et al., 2016; Mira et al., 2022). Friendship is, also, considered an important source of social support and influence for sports practice. Children with disabilities usually have less friends and sport offers ample opportunity for promoting social connections (Martin, 2006; Martin & Smith, 2002). The pattern of support for athletes throughout their career should be adjusted as their needs change (Rees & Hardy, 2000).

Although social support is essential for athletes with disabilities, it is not the solution to all the challenges these athletes face, not only in their social and personal life but also in their sport, training and competition life. With many hours of training often repetitive and with implications in stress levels, time to recover from injuries that prevent them from performing and competitive anxiety with the agony of failure, athletes need not only physical resistance and talent but also mental resistance (Vallerand & Losier, 1999; Jones et al., 2002). Many studies have addressed the topic of resilience in athletes with disabilities (Machida et al., 2013; Cardoso & Sacomori, 2014; Martin et al., 2015; Porto et al., 2016; Powell & Myers, 2017; Sikorska & Gerc, 2018; Atkinson & Martin, 2020; Mira et al., 2022; Martin et al., 2022). Fletcher and Sarkar (2012) presented resilience as the set of mental and behavioural processes that promote personal assets and, in turn, protect the individual against the potential negative effects of stress. How a person reacts to adversity in a positive way depends on the adversity they have been subjected to and their own adaptation to it (Morgan et al., 2013).

Sports participation of people with disabilities has shown implication on resilience, especially on access to social support, opportunities and meaningful social experiences (Machida et al., 2013). In a recent systematic review conducted by Mira et al. (2023), a

few studies demonstrated a relationship between social support and resilience in athletes with disabilities (Machida et al., 2013; Powell & Myers, 2017; Mira et al., 2022). These results are in line with the conceptual model of sport resilience previously developed by Galli & Vealy (2008) which argues that sociocultural influences are crucial for the resilience in athletes. Just as the social support from family, coach, colleagues, and those around them, resilience is crucial to their responses to the adversity they face (Bicalho & Noce, 2019).

Fontes and Brandão (2013) reinforce the idea that resilience manifests itself throughout life from the interaction between risk and protection factors and because high performance sport is an environment that exposes athletes to risk and stress, athletes strengthen their positive personal characteristics and network of social and affective support in an effective way to overcome adversities and not abandon the career prematurely.

On the other hand, several studies have proven the role of physical activity and sport in increasing well-being (Smith et al., 2011; Mack et al., 2012; Caddick & Smith, 2014; Hogan et al., 2015) and specifically, subjective well-being (Downward & Rasciute, 2011; Ku et al., 2007; Moraes et al., 2012; Ku et al., 2014; Olsson et al., 2014)]. Subjective well-being is defined as the search in life for pleasure (Waterman, 2008), which represents what the person feels in relation to his/her own life (Kashdan et al., 2008). With a hedonic premise and a complex and multifaceted nature, it evaluates life cognitively and affectively, being subdivided into three components: positive affect, negative affect and satisfaction with life (Ryff & Keyes, 1995; Diener et al., 1999; Diener et al., 2003). Cognitive appraisals are characterized by life satisfaction and sense of personal fulfilment; affective appraisals presuppose the presence of positive affect (positive emotions and moods) and the lack of negative affect (negative emotions and moods) (Diener, 2000; Ryan & Deci, 2001; Diener et al., 2003; Diener & Ryan, 2009). People with disabilities have poorer well-being due to their characteristics and may experience anxiety and depressive disorders more often than people without disabilities (Puce et al., 2023). Studies show that people with disabilities who practice sport have greater life satisfaction and well-being compared to people with disabilities who do not practice sport (Blauwet & Willick, 2012; Puce et al., 2023; Yazicioglu et al., 2012; Frank et al., 2013). In a review study on this topic, it was possible to verify that the

studies that analysed subjective well-being in athletes with disabilities revealed high positive affect and low negative affect (Mira et al., 2023).

Social support and well-being are two important constructs in athletes with disabilities and their relationship has been evidenced in several studies (Crawford et al., 2015; Fiorilli et al., 2016; Haslett et al., 2017; Atkinson & Martin, 2020; Aitchison et al., 2021; Mira et al., 2022; Monton et al., 2022). Waldinger and Schultz (2016) argues that social connections are very important, people who are more socially connected are happier, healthier and live longer. The quality of close relationships is very important and healthy relationships protect our body and brain. Good relationships keep us happier and healthier or, in other words, a good life is built on good relationships (Waldinger & Schultz, 2016). The association between positive affect and social support from parents and friends has reinforced the importance that this support seems to have on the emotional states of athletes (VaezMousavia et al., 2013; Shapiro & Malone, 2016). The social support provided to athletes with disabilities is very important, as improvement of their career and well-being (Crawford et al., 2015; Fiorilli et al., 2016; Haslett et al., 2017; Atkinson & Martin, 2020; Aitchison et al., 2021; Mira et al., 2022; Montonet al., 2022).

At the same time, the literature has also shown a strong association between resilience and well-being in athletes with disabilities (Machida et al., 2013; Martin et al., 2015; Sikorska & Gerc, 2018; Atkinson & Martin, 2020; Martin et al., 2022; Mira et al., 2022). As argued by Fredrickson (1998), positive emotions operate as resources for coping with adversity. Subjective well-being and resilience associated with positive emotions may lead to the creation of lasting psychological resources and, consequently, greater emotional strengthening from the reinforcement of positive emotions (Fredrickson, 1998; Jaafar et al., 2014). Positive emotions lead to higher levels of resilience in the future and resilience also achieves its effects, in part, through the conception of positive emotion (Jaafar et al., 2014). Well-being sometimes results from active combat with adversity. Experiences with obstacles, failures and disappointments are necessary to know one's own limitations and vulnerability, find internal strengths and renew resources (Fredrickson, 1998). In each risk situation, a person may react vulnerably, with a negative affect response, or resiliently, with a positive affect response.

In summary, social support is noted as one of the most important factors in coping with challenges and recovering from adversity (Mira et al., 2023). Sports participation of people with disabilities has shown implication on resilience, especially on access to social support, opportunities and meaningful social experiences (Machida et al., 2013). Social support for athletes with disabilities is extremely relevant to improving their career and well-being. Sport experiences provide an improvement in social skills, which in turn consequently improves well-being and social support (Crawford et al., 2015; Fiorilli et al., 2016; Haslett et al., 2017; Atkinson & Martin, 2020; Aitchison et al., 2021; Mira et al., 2022; Montonet al., 2022). Thus, the aim of our study is to understand the association between social support, resilience and positive affect and negative affect, satisfaction with life, in athletes with disabilities who play federated sport.

4.3. Present Study

Social support from parents, friends, best friend and coach is fundamental for the sport practice of people with disabilities (Galli &Vealey, 2008; Mira et al., 2022; Mira et al., 2023). These social supports are crucial for the resilience process of these athletes as social support has been pointed out as one of the most important factors to deal with challenges and recover from adversity (Bicalho & Noce, 2019; Mira et al., 2022; Mira et al., 2023). Additionally, the association between resilience and well-being in athletes with disabilities has been demonstrated (Machida et al., 2013; Martin et al., 2015; Sikorska & Gerc, 2018; Atkinson & Martin, 2020; Martin et al., 2022; Mira et al., 2022). Although these variables have already been studied with disabled athletes, this study tries to analyse the relationships of these variables in four models. This study is part of a global project that, in a previous study (Mira et al., 2022), already characterised the portuguese team present at the Tokyo Paralympic Games, regarding these variables (social support, resilience and affect). However, that study only sought to characterise and analyse associations between the variables, and in a very specific sample of high-performance athletes with disabilities. Thus, the present study intends to analyse the association between types of social support, resilience and subjective well-being (life satisfaction, positive affect and negative affect) in a sample of athletes with disabilities who play federated sport (with different competitive levels and sporting experience), according to the model shown in the figure below. This study will

allow us to understand the importance of the role that parents, coaches, friends and best friends can have in the practice of sport for people with disabilities.

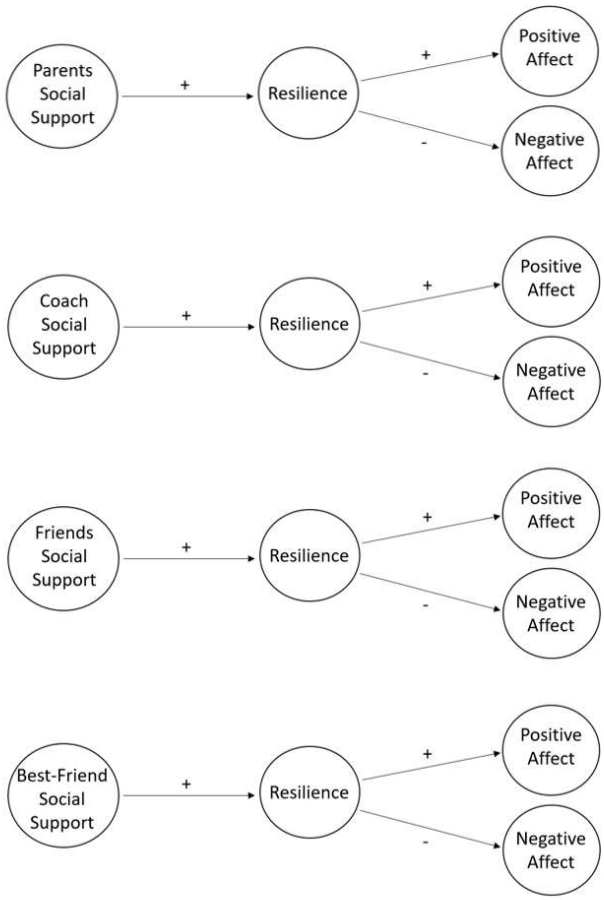

Figure 4. Hypothesised model applied to four types of social support

Based on this assumption, this study aimed to analyse the following hypotheses:

a) Parental social support is positively associated with resilience in athletes with disabilities, as suggested by the literature (Atkinson & Martin, 2020; Machida et al., 2013; Powell & Myers, 2017; Mira et al., 2022; Mira et al., 2023);
b) Coach social support is positively associated with resilience in athletes with disabilities, as previously reported in the literature (Atkinson & Martin, 2020; Machida et al., 2013; Powell & Myers, 2017; Mira et al., 2022; Mira et al., 2023);
c) Social support from friends is positively associated with resilience in athletes with disabilities, as suggested in previous studies (Atkinson & Martin, 2020; Machida et al., 2013; Powell & Myers, 2017; Mira et al., 2022; Mira et al., 2023);
d) Best friend social support is positively associated with resilience in athletes with disabilities, in line with previous literature indicators (Martin & Smith, 2002; Martin, 2006; Atkinson & Martin, 2020; Mira et al., 2023);

e) Resilience is positively associated with levels of positive affect in athletes with disabilities, as suggested in previous studies with this population (Mira et al., 2022; Mira et al., 2023);
f) Resilience is negatively associated with negative affect levels in athletes with disabilities, as suggested by the literature (Mira et al., 2022; Mira et al., 2023).

4.4 Materials and Methods

4.4.1. Study design and Procedures

For present study, it was defined, as an inclusion criterion, athletes with disabilities who practice competitive sports in Portugal.

The study protocol explained the objectives of the study, guaranteed the principle of confidentiality and assumed the acceptance of informed consent to proceed with the application of the questionnaires. Respondents were fully informed about the aim of the study, the procedures for data the voluntary participation. They were also informed that could quit from the study at any time. Participants did not receive compensation for their participation.

The questionnaires were applied in one go via a Google form (between October 2021 and January 2022) and disseminated by athletes with the support of sports federations, clubs and coaches. Coaches of athletes with visual impairments and with intellectual disabilities were asked to help athletes complete the questionnaires.

After applying the questionnaires, we collect the information and process the data in the computer programs (IBM SPSS STATISTICS v.27.). Each questionnaire evaluated four domains: sociodemographic data, life satisfaction, positive and negative affect, resilience and social support. The sociodemographic questions were developed specifically for this study, having been reviewed by 4 experts. The other 4 questionnaires are instruments already validated for the Portuguese population.

This study was approved by the ethics committee of the University of Beira Interior (CE-UBI-Pj-2018-076).

4.4.2. Participants

The study involved 105 athletes with disability from the Portuguese teams aged between 13 and 61 years, mean age of 32 ± 12.35 years, with 78 men (74.3%) with a mean age of 34 ± 13,13 years and 27 women (25.7%) with mean age 30 ± 9.28 years.

Of the 105 athletes, 75 have physical disabilities, 23 have intellectual disabilities, 5 have visual impairments and 2 have multiple disabilities, diagnosed according to the criteria of the International Classification of Functioning (World Health Organization, 2001).

The sample consists of athletes from 14 adapted sport modality: 18 of wheelchair handball, 10 of athletics, 2 of badminton, 1 of ballet, 17 of wheelchair basketball, 14 of Boccia, 1 of futsal, 1 of goalball, 1 of judo, 34 of paraswimming, 1 of paradressage, 2 of paracanoeing and 3 of table tennis.

The number of weekly trainings of these athletes varies between one training per week (5.7%), two training per week (20%), 3 training per week (20%), four training per week (10.5%), five workouts per week (7.6%) and more than 5 workouts per week (36.2%).

Of these athletes, 29.5% have been practising the sport for 4 to 7 years, 22.9% for 8 to 11 years and 47.6% have been practising the sport for 12 years or more. Most athletes (42.9%) train between 2 and 6 hours a week, followed by those who train between 11 and 14 hours (21.9%), those who train between 7 and 10 hours (16.2%), between 15 and 18 hours (10.5%), between 19 and 22 hours (5.7%) and, finally, those who train more than 22 hours (2.9%).

4.4.3 Measures

4.4.3.1 Sociodemographic Characterization

Participants were required to a sociodemographic questionnaire that focuses on the characterization of issues such as gender, age, time of practice, modality, weekly frequency, weekly training volume and reasons for practising.

4.4.3.2 Social Support

We measured disabled athletes' perceptions of the social support provided by parents, coach, friends and best friend with the Friend Support Scale (Jago et al., 2012). Four stems were created according to support group as follows: "how often your parents?"; "how often your coach?"; "how often your friends?" and "how often your best friend?".

Participants responded to these four statements: (1) encourage you to exercise or play sports, (2) exercise or play sports with you, (3) tell you that you are doing well in exercise or sports and (4) watch you take part in exercise or sports?". All items were answered on a four-point scale ranging from 1 (strongly disagree) to 4 (strongly agree).

The scale of support from friends has been used previously in other studies, with acceptable reliability for the same age and language group (Lopes et al., 2015; Monteiro et al., 2021). A confirmatory factor analysis (CFA) of this scale provided an acceptable fit to the data as follows: Coach: ($\chi2$= 16.50; SRMR=.031; B-Sp= <.001; RMSEA=.075 [90%CI=.059, .086]; TLI=.946; CFI=.976); Parents: ($\chi2$= 52.10; SRMR=.062; B-Sp= <.001; RMSEA=.056 [90%CI=.049, .076]; TLI=.916; CFI=.926); Friends: ($\chi2$= 7.19; SRMR=.034; B-Sp= <.001; RMSEA=.059 [90%CI=.038, .816]; TLI=.978; CFI=.989); Best-Friend: ($\chi2$= 10.15; SRMR=.057; B-Sp= <.001; RMSEA=.061 [90%CI=.047, .961]; TLI=.939; CFI=.953).

4.4.3.3 Subjective Well-being

The Positive and Negative Affect Shedule (for positive affect α=0.85; for negative affect α=0.91) (PANAS; Watson et al., 1988) in the reduced Portuguese version, by Galinha, Pereira and Esteves (2013), consisting of 10 items (five items for positive affect: "inspired", "alert", "excited", "enthusiastic" and "determined" and five items for negative affect: "fear", "worried", "nervous", "scared" and "perturbed") that are answered on a Likert-type scale, with 5 levels, ranging from 1 (“Not at all or very slightly”) to 5 (“Extremely”).

4.4.4 Data Analysis

Means, standard deviation and bivariate correlations were calculated for all studied variables in IBM SPSS STATISTICS v.27. In addition, as suggested by Kline (2016), a two-step approach trough maximum likelihood estimation method was performed in IBM SPSS AMOS (version 27.0). First, the Confirmatory Factor Analysis (CFA) was performed to test the psychometric properties and data adjustment of the measurement model. Therefore, convergent validity was assessed via average variance extracted (AVE), considering values higher than or equal .50 as adequate (Fornell et al., 1981). Discriminant validity was estimated through the square correlations between factors, and it was considered adjusted when the square correlations were below the AVE of each factor (Hair et al., 2019). Additionally, the internal consistency of each of the latent variables under study was calculated, from the composite reliability (Raykov,

1997), assuming as a cut-off value for adequacy coefficients, ≥.70 (Hair, 2019; Raykov, 1997). Second, a structural model was established to test the hypothesis. The model´s fit for both the measurement model and the structural model was observed through the traditional goodness-of-fit indexes. Specifically, we used the Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) and the absolutes of the Standardized Root Mean Residual (SRMR) and Root Mean Square Error of Approximation (RMSEA) with a confidence interval (CI 90%), as recommended by several authors (Kline, 2016; Hair et al., 2019; Byrne, 2016; Marsh et al., 2004) and with the following adopted cut-off values: CFI and TLI ≥ .90; RMSEA and SRMR ≤ .08 (Kline, 2016; Hair et al., 2019; Byrne, 2016; Marsh et al., 2004). Standardized direct and indirect effects on the dependent variable were also analyzed. The independent variables are social support provided by the friend, best-friend, parents, and coaches. Dependent variables are positive and negative affect and resilience operate as a possible mediator. The significance of direct and indirect effects was analyzed using a bootstrap resampling procedure (1000 bootstrap samples), through a 95% CI. The indirect effect was considered significant (≤ 0.05) if the 95% CI did not include zero (Williams & MacKinnon, 2008). We chose to consider confidence intervals rather than the probability of significance (p-value) due to recent evidence of mediation without a significant relationship between variables (Hayes, 2018).

4.5 Results

An inspection of the data revealed that no missing values or outliers univariate and multivariate were detected. Item-level descriptive statistics indicated no deviations from univariate normality because skewness and kurtosis assumptions of the data distribution were comprised between -2 and +2 and -7 and +7, respectively (Hair et al., 2019). Mardia's coefficient for multivariate kurtosis exceeded expected values (5.0) for the all models under analysis in terms of assumption of multivariate normality (Byrne et al., 2016). Therefore, the Bollen-Stine bootstrap on 2000 samples was employed for subsequent analysis (Nevitt & Hancock, 2001).

Table 5. Descriptive statistics, bivariate correlations, average variance extracted and composite reliability coefficents

Variables	M	SD	1	2	3	4	AVE	CR
Model SS-BF								
1. SS-BF	3.17	.80	1	-	-	-	.67	.87
2. Resilience	3.42	1.02	-.11	1	-	-	.57	.76
3. PA	3.78	.86	.18	.28**	1	-	.62	.79
4. NA	1.71	.73	.08	-.37**	.09	1	.58	.78
Model SS-C								
1. SS-C	3.48	.55	1	-	-	-	.69	.85
2. Resilience	3.42	1.02	.05	1	-	-	.58	.82
3. PA	3.78	.86	.22*	.28**	1	-	.61	.82
4. NA	1.71	.73	-.03	-.37**	.09	1	.57	.73
Model SS-F								
1. SS-F	3.13	.76	1	-	-	-	.69	.87
2. Resilience	3.42	1.02	-.03	1	-	-	.57	.74
3. PA	3.78	.86	.30**	.28**	1	-	.62	.65
4. NA	1.71	.73	.18	-.37**	.09	1	.59	.75
Model SS-P								
1. SS-P	2.81	.84	1	-	-	-	.66	.88
2. Resilience	3.42	1.02	-.19	1	-	-	.56	.87
3.PA	3.78	.86	.13	.28**	1	-	.66	.72
4. NA	1.71	.73	.06	-.37**	.09	1	.68	.74

Notes. M = Mean; SD = Standard Deviation; SS-BF = social support provided by best friend; SS-C= social support provided by coach; SS-F= social support provided by friends; SS-P= social support provided by parents;PA= positive affects; NA= negative affects; AVE= average variance extracted; CR= composite reliability * p<0.05; ** p<0.01

Descriptive statistics showed that the participants presented scores above midpoint for all variables, except negative affect in all models under analysis. Looking at bivariate correlations, positive and negative significant associations were found between resilience and positive and negative affect, respectively. These associations were consistent in the all models. It is importante to note that, in models of SS-C and SS-F a positive and significant association was observed between social support and positive affect. As seen by the CR coefficients, each factor showed scores above the cut-off

(>0.70), revealing adequate internal consistency. Based on the results of the measurement model and reliability analysis, convergent and discriminant validity were calculated. Convergent validity was achieved, since the AVE scores were above the acceptable cut-off values, as seen in Table 1. According to the squared correlations and AVE scores, all factors demonstrated adequate discriminant validity since the squared correlations of each latent variable were lower than the AVE scores in each latent variable. The results provide preliminary support to conduct SEM analysis and examine the direct effects across social support provided by best-friends, coach, friends and parents with resilience and positive and negative affect and indirect effect between social support provided by best-friend, coach, friends and parents and positive and negative affect via resilience can also be analyzed in this way.

Table 6. Goodness-of-fit indexes

Model	χ^2	df	χ^2/df	B-Sp	CFI	TLI	SRMR	RMSEA	CI90%
1. CFA – SS-BF	136.41	105	1.29	.313	.947	.935	.076	.061	.034 - .085
2. CFA – SS-C	116.93	105	1.11	.566	.971	.964	.062	.043	.001 - .070
3. CFA – SS-F	126.05	105	1.20	.355	.959	.950	.066	.052	.018 -. 077
4. CFA – SS-P	124.03	105	1.18	.372	.962	.954	.067	.051	.012 - .076
5. SEM – SS-BF	145.13	108	1.34	.263	.939	.927	.071	.065	.039 - .087
6. SEM – SS-C	130.46	108	1.20	.436	.954	.946	.072	.053	.020 - .077
7. SEM – SS-F	142.35	108	1.31	.224	.928	.939	.080	.063	.036 - .086
8. SEM – SS-P	132.83	108	1.22	.299	.954	.945	.077	.055	.024 - .079

Notes. CFA = Confirmatory Factor Analysis; SEM = Structural Equation Modelling; χ^2 = Chi-square; df = degrees of freedom; gl/df = normalized chi-square; B-Sp= Bollen-Stine level of significance; CFI = Comparative Fit Index; TLI= Tucker Lewis Index; SRMR= Standardized Root Mean Square Residual; RMSEA= Root Mean Square Error of Approximation; CI90% = Confidence Interval at 90% for RMSEA.

Table 7. Direct and indirect regression paths

Regression Path	Direct				Indirect		
	β	**CI95%**	***p***		**β**	**CI95%**	***p***
Model SS-BF				*Model SS-BF*			
SS-BF → RESIL	.06	-.272 - .327	.766	SS-BF → PA	.01	-.063 - .152	.685
RESIL → PA	.30	.050 - .565	.020	SS-BF → NA	-.02	-.154 - .096	.676
RESIL → NA	-.38	-.619; - .145	.005	-	-	-	-
Model SS-C				*Model SS-C*			
SS-BF → RESIL	.04	-.236 - .271	.845	SS-BF → PA	.01	-.051 - .120	.728
RESIL → PA	.30	.055 - .569	.017	SS-BF → NA	-.01	-.121 - .089	.760
RESIL → NA	-.38	-.630 ; -.147	.005	-	-	-	-
Model SS-F				*Model SS-F*			
SS-BF → RESIL	.14	-.049 - .340	.894	SS-BF → PA	-.04	.017 - .118	.006
RESIL → PA	.29	.043 - .548	.020	SS-BF → NA	.06	.003 - .032	.004
RESIL → NA	-.39	-.622; - .142	.003	-	-	-	-
Model SS-P				*Model SS-P*			
SS-BF → RESIL	.01	-.251 - .308	.149	SS-BF → PA	.003	-.063 - .146	.847
RESIL → PA	.30	.044 - .559	.024	SS-BF → NA	-.004	-.125 - .108	.867
RESIL → NA	-.38	-.621; - .144	.004	-	-	-	-

Note. SS-BF = social support provided by best friend; SS-C= social support provided by coach; SS-F= social support provided by friends; SS-P= social support provided by parents;PA= positive affects; NA= negative affects; RESIL= resilience; β = standardized coefficient; CI95%= Confidence Interval at 95%; *p* = level of significance

The CFA measurement model including the social support provided by the best friend, coach, friends and parents, resilience and positive and negative affect displayed adequate fit to the data in each sample (see model 1, 2, 3 and 4 in Table 2).

The results from the SEM analysis showed that the structural model in each model provided acceptable fit to the data as seen in Table 2 (see model 5,6,7 and 8 in Table 2). Positive and significant associations were observed among resilience and positive affect and a negative and significant associations were observed between resilience and negative affect. The associations between social support from best-friends, coach, friends, and parents were not significant. In addition, the indirect effects between social support from best-friends, coach, friends, and parents and positive and negative affect via resilience were not significant, as seen in table 3.

4.6 Discussion

This study aimed to analyse the associations between types of social support, resilience, and subjective well-being (life satisfaction, positive affect and negative affect) in a sample of athletes with disabilities. The model was analysed for the four actors of social support studied, the coach, parents, friends, and best friend.

According to the results, athletes with disabilities presented values above the midpoint for the scales that assess resilience and positive affect and values below the midpoint for the scale that assesses negative affect in the four models of social support analysed. These results seem to agree with the literature, particularly by Mira et al. (2022), that found that Portuguese Paralympic athletes have high values of life satisfaction, high positive affect, low negative affect, and good levels of resilience.

The results reveal that hypotheses a), b), c) and d) are not confirmed, since the associations between social support and resilience levels were not significant for any of the sources (parents, friends, best friend, and coach). In addition, the indirect effects between social support from parents, friends, best friend and coach and positive affect and negative affect through resilience were not significant. Contradictory to some studies that have analysed these variables and argue that to develop mentally strong characteristics and behaviours, athletes in general may benefit from exposure to highly demanding situations in a supportive environment (Powell & Myers, 2017). These include social support from family, coach, peers, and those around them, crucial to their responses in the face of the adversities they encounter (Bicalho & Noce, 2019). Which, in turn, are necessary to know their own limitations and vulnerabilities, finding their own internal strengths and improving levels of well-being through actively combating these adversities (Fredrickson, 1998). Concerning the found associations the results show that, in the models of social support of the coach and friends, a positive and significant association was observed between social support and positive affect. In a previous study conducted in paralympic athletes, positive affect was associated with social support from parents and friends, although the coach presented the value of greatest influence on the athlete, followed by friends, best friends and at last, parents (Mira et al., 2022). These results seem to demonstrate that coach support is more important for federated disabled athletes than specifically for elite (Paralympic) athletes, in contrast to parents. The support of friends has a consensus in its importance for both federated athletes with disabilities and paralympic athletes, which is in line with the literature that considers friendship an important source of social

support and influence for the practice of sports (Haye et al., 2011). The origin of social support is extremely important for access to sports practice. However, it does not necessarily have to be positively and significantly associated with resilience or subjective well-being.

The results also show that for the four models analysed (parents, coach, friends and best friend), there is a direct effect of the types of social support provided with resilience, positive and negative affect. There is also an indirect effect between types of social support and affect (positive and negative) through resilience. Therefore, contrary to what we had considered (hypotheses a), b), c) and d)), the different types of social support did not show a significant association with the levels of resilience. These results do not seem to be in line with some with the literature, that highlight sociocultural influences as crucial for the resilience process in athletes (Galli & Vealey, 2008). In the study by Li et al. (2021) investigating the main and interactive relationships of social support and resilience on individual mental health during the COVID-19 pandemic across three age groups: emerging adults, adults, and older adults, they identified five social support profiles, and the patterns of potential profiles were similar across all groups. However, the distribution of the categories in the five profiles was significantly different between the age groups. Considering the different age groups presented in our sample, this could be a possible explanation. It would be interesting to explore these data by age group and a much larger sample. On the other hand, it is important to remember the role that types of social support plays in the participation in sport by people with disabilities, as evidenced by different studies (Machida et al., 2013; Crawford et al., 2015; Aitchison et al., 2021; Mira et al., 2022). In the same sense, the origin of this types of social support, it is important the standard adjustment of the athlete's support throughout his/her career according to his/her changing needs, be it accessibility, disability condition, challenges inherent to the practice of sport (Rees & Hardy, 2000).

Hypotheses e) and f) were confirmed, with a positive and significant association between resilience and positive affect and a negative association between resilience and negative affect. The results show that, more than the perceived social support itself, resilience seems to have a preponderant weight in the consequence of sports practice, in this case subjective well-being, in its emotional component (positive and negative affect). This result is particularly relevant if we consider the importance of this emotional dimension of well-being, since the literature has shown, in general, that positive emotions can function as resources for coping with adversity (Fredrickson,

1998; Jaafar et al., 2014). Fredrickson (2004) explains the importance of positive affect in predicting resilience through the broaden-and-build theory. The author argues that an emotion begins with a person own conscious or unconscious appraisal of the significance of an antecedent event for him or her. People with experiences of positive affect are better able to engage and participate in activities in their environment. Affect represents accessible conscious feelings. According to this theory, certain discrete positive emotions, such as joy, interest, satisfaction, pride and love, share the ability to momentarily broaden the thought/action repertoire and build lasting personal resources, evolving from physical and intellectual resources to social and psychological resources. Positive emotions make people feel good in the present, and their effects broaden thinking, increasing the likelihood that people will feel good in the future. They increase people thought/action repertoire, undo persistent negative emotions, stimulate psychological resilience and, by building psychological resilience, trigger upward spirals that increase well-being.

The literature tells us that the study of resilience has been widely carried out with parents and family members of people with disabilities and that the findings have been quite positive although they are not directly related to people with disability. However, the sources of social support are crucial actors in the access to sports practice of these people (Palanci, 2017; Halstead et al., 2018; Mohan & Kulkarni, 2018; Rajan et al., 2018). Therefore, it would be interesting to analyse the levels of resilience of parents, friends, best friend and coach in the models themselves.

These results of our study agree with the study previously conducted in a sample of paralympic athletes (Mira et al., 2022), where it was noted that the negative association between resilience and negative affect seems to indicate a possible blocking effect of resilience to emotionally negative experiences of athletes (Ryff & Singer, 2003; Hammond, 2014; Hariharan et al, 2014; Mira et al., 2022). Other studies have proven the association between resilience and subjective well-being in athletes with disabilities (Martin et al., 2015; Sikorska & Gerc, 2018; Atkinson & Martin, 2020; Silva et al., 2020; Mira et al., 2023), which is in accordance with the importance of this variable in this population that, in a given risk situation, one can react in a vulnerable way, with a negative affect response, or in a resilient way, with a positive affect response (Fredrickson, 1998).

The analysis of all models of social support showed a direct effect on resilience and positive and negative affect. Literature tells us that exposure of disabled athletes to

highly demanding and socially supported situations benefits them in developing resilient characteristics and behaviours (Machida et al., 2013; Mira et al., 2023).

The results of the present study may constitute an important contribution to practice, particularly for all those working in the context of adapted sport, as they highlight the importance of monitoring these variables throughout the process. It becomes fundamental that types of social support acts as a teamwork that supports in the various challenges and tasks inherent and adjusted to the characteristics and needs of athletes with disabilities (Crawford et al., 2015) and, therefore, the sources of types of social support should be multiple, from family, therapists, colleagues, coaches, among others (Machida et al., 2013). Types of social support provided by a multidisciplinary team presents an essential role in the development and improvement of athletes' training and performance. The social support of family, friends and other performance agents are considered the necessary and indispensable support for the provision of mental health care and happiness in general (Sheridan et al., 2014). Resilience, in particular, seems to play an extremely relevant role and to have an impact on the well-being perceived by athletes, and should be the subject of attention and should be a variable to be enhanced in the context of sport. Sport as an environment that exposes athletes to the risk, needs and stress inherent in the competitive environment, allows athletes with disabilities to strengthen their personal and social resources, as well as their positive characteristics and social support network, which will allow them to overcome adversity successfully, with above average levels of resilience.

Despite the results of this study, there are some limitations that should be taken into account in future studies. Although our sample fulfils the criteria, it is relatively small, and future studies should consider recruiting larger samples. On the other hand, other variables that could play an important role in this process were not analysed, such as the type of disability or sport played and the effect of age. A longitudinal analysis would also be important. At the same time, it will also be important to make an effort in order to try to validate the Brief Resilience Scale for this population in the future.

4.7 Conclusion

The present findings seem to indicate that the effect of social support provided by the best friend, coach, friends and parents had a direct effect on resilience and positive and negative affect. We also found a positive and significant association between resilience

and positive affect and a negative association between resilience and negative affect. The strongest relationship in the variables studied was found between resilience and affect, with no relationship being verified between the sources of social support and resilience or affect, as hypothesized. For this group of athletes with disability, more than the social support they may have or may feel, resilience proved to be very important for the consequence of sports practice in terms of subjective well-being.

Ethics Statement: With the approval of the study by the ethics committee of the University of Beira Interior (CE-UBI-Pj-2018-076). The protocol explained the objectives of the study, guaranteed the principle of confidentiality and assumed the acceptance of informed consent to proceed with the application of the questionnaires.

Author contributions: R.A. was the leader of the research group that conducted the study. T.M.; M.J.; A.M.C.; D.M.; S.D.; R.M. and R.A. contributed to the conception and design of the study. D.M.; M.J.; A.M.C. and R.A. organized the database. T.M.; D.M. and R.A. performed the statistical analysis and wrote the first draft of the manuscript. M.J.; A.M.C.; S.D. and R.M. reviewed and edited the first draft. All authors have read and agreed to the published version of the manuscript.

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Conflit of interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Transparency statement: This study is part of a global research project on Portuguese athletes with disabilities. Thus, in a first study we sought to characterise the population of high-performance athletes, namely the Portuguese team that was present at the Tokyo 2020 Paralympic Games (Mira et al., 2022), that aimed characterize the Portuguese delegation at the Tokyo 2020 Paralympic Games through sociodemographic and psychosocial variables (positive and negative affect, life satisfaction, resilience, and social support). However, with the present work we aimed to reach a larger sample with different characteristics. Thus, keeping the paralympic athletes already studied, we also added athletes with different years of practice and with different competitive levels. Moreover, in this work, we did not seek only a descriptive analysis but an analysis in a single model that could explain the associations between the different variables.

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Chapter 5 – Conclusions, Limitations and Future Research Proposals

5.1 General Discussion and Conclusions

The aim of this doctoral thesis was to study the variables: social support, resilience and subjective well-being in athletes with disabilities practising federated adapted sport. Studying the well-being and resilience of athletes with disabilities, and understanding the influence of social support, has enabled the analysis and understanding of the impact of sport practice, thus contributing to a better understanding and acceptance of the need for inclusion of people with disabilities in sport.

Chapter 1 provides a general introduction to the field of study, with a narrative review that enabled the framework and validated the relevance of the present research.

Chapter 2 presents a systematic review, based on a previously published article, with the aim of identifying and evaluating the peer-reviewed scientific literature on the relationship between sport participation and well-being, resilience and social support. From the analysis of the studies included in this systematic review, it can be concluded that sport seems to play a positive role in the well-being of athletes with disabilities in different domains. All the studies that investigated well-being showed a positive perception between the practice of sport by people with disabilities and well-being (Macdougall et al., 2016; Martin et al., 2015; Martin et al., 2020; Saphiro & Martin, 2014; Sikorska & Gerc, 2018). The studies reviewed confirmed and strengthened the relationship between life satisfaction and resilience, with athletes with higher levels of resilience showing greater life satisfaction and greater involvement and commitment to their sport. There is a consensus that social support from family, friends and coaches has a crucial impact on the sporting practice of these athletes (Aitchison et al., 2021; Atkinson & Martin, 2020; Crawford et al., 2015; Monton et al., 2022; Mudjanto et al., 2017; Swanson et al., 2008).

The studies reviewed confirm the importance of sport practice in the perception of subjective well-being, both in its cognitive dimension (life satisfaction) and in its emotional dimension (positive and negative affect), in line with what has been reported

in the literature (Downward & Rascuite, 2011; Ku et al., 2007). In studies analysing subjective well-being, athletes express high levels of positive affect and low levels of negative affect (Mira et al., 2022; Shapiro & Malone, 2016). It is also a consistent finding that athletes with higher levels of resilience have higher life satisfaction (Martin et al., 2015; Martin et al., 2020; Sikorska & Gerc, 2018). Resilience is mentioned as a significant predictor of life satisfaction and sport engagement (Martin et al., 2020) and has been widely studied as a quality present in people with disabilities who participate in sport (Atkinson & Martin, 2020; Cardoso & Sacomori, 2014; Machida et al., 2013; Martin et al., 2015; Martin et al., 2020; Mira et al., 2022; Porto et al., 2016; Powell & Myers, 2017; Sikorska & Gerc, 2018).

Chapter 3 presents a characterisation study of the Portuguese delegation at the Tokyo 2020 Paralympic Games through socio-demographic and psychosocial variables (positive and negative affection, life satisfaction, resilience and social support), the result of a previously published article. The socio-demographic variables allowed us to know the reality of these athletes, such as the number of hours of training per week and the academic and professional situation. This has helped us to reflect on the need to encourage academic careers and make it possible to reconcile them with the dual career of sports training. The dual career aims to give the elite athlete the opportunity to reconcile, in a fair way, the sporting career with the academic career (Picamilho et al., 2021).

In the analysis of the country's municipalities with adapted sports modalities, it was interesting to verify the increase in supply during the implementation of this research. The current number does not correspond to the number reported in the article published in June 2022. However, the supply and accessibility of adapted sports in the interior of the country is still poor. Knowing and identifying where athletes come from and comparing this with the number of clubs is an additional contribution to the implementation of policies to promote adapted sport in Portugal.

Portuguese Paralympic athletes participating in Tokyo 2020 have high levels of life satisfaction, high levels of positive affect and low levels of negative affect. These findings seem to be in line with previous studies which have concluded that Paralympic athletes' interactions with others, both able-bodied and disabled, provide them with opportunities to build new relationships and friendships and increase their life satisfaction (Ondrušova et al., 2013). A high score for resilience was also found in these athletes, confirming the literature which has found that athletes with disabilities have

significant levels of resilience (Cardoso & Sacomori, 2013; Côté-Leclerc et al., 2017; Machida et al., 2013; Sikorska & Gerc, 2018). In terms of social support, it was found that the coach had the highest value or greatest influence on the athlete, followed by friends, best friends and, finally, parents. This is consistent with Banack et al. (2011), who reported the importance of the Paralympic athlete's relationship with the coach in supporting autonomy. Many of the athletes, depending on their disability, need the coach to assist them with basic activities in training and competition. In the study of these athletes, an association between life satisfaction and positive affect was observed, which is consistent with the conceptual framework of subjective well-being (Diener, 2000; Diener & Ryan, 2009; Diener et al., 1985; Diener et al. al., 2003) and some recent studies (Busseri, 2018). The association between positive affect and social support from parents and friends reinforces the importance that this support appears to have on athletes' emotional states and confirms some of the evidence in the literature (Saphiro & Malone, 2016; VaezMousavia et al., 2021). Regarding resilience and its negative association with negative affect, it seems to indicate a possible buffering effect of resilience for negative emotional experiences (Cohn et al., 2009; Ong et al., 2006; Ryff, & Singer, 2003).

Chapter 4 consisted of a study that aimed to analyse the relationship between types of social support (parents, coach, friend and best friend), resilience and positive and negative affect in Portuguese athletes with disabilities who participate in sport. Athletes with disabilities presented scores above the mean on the scales assessing resilience and positive affect, and scores below the mean on the scale assessing negative affect in the four social support models analysed.

Four of the hypotheses posed were not supported as the associations between social support and levels of resilience were not significant for any of the sources (parents, friends, best friend and coach). The indirect effects between social support from parents, friends, best friend and coach and positive affect and negative affect through resilience were not significant. These findings seem to contradict some studies that have analysed these variables and argued that athletes in general can benefit from exposure to highly demanding situations in a supportive environment in order to develop mentally strong traits and behaviours (Powell & Myers, 2017).

A positive and significant association was found between resilience and positive affect, and a negative association between resilience and negative affect. The results show that resilience, more than perceived social support itself, seems to have a preponderant

weight in the outcome of sport practice, in this case subjective well-being, in its emotional component (positive and negative affect). Analysis of the effect of social support from best friends, coaches, friends and parents showed a direct effect on resilience and positive affect and negative affect. This is in line with the literature which states that exposing athletes with disabilities to highly demanding and socially supportive situations benefits them in the development of resilient traits and behaviours (Machida et al., 2013; Mira et al., 2023).

This thesis has objectively and conclusively shown that:

- The disparity between the total number of men and women practising adapted sports is still a reality (Mira et al., 2022; Mira et al., 2023);
- Training hours per week are quite heterogeneous between athletes and sports disciplines (Mira et al., 2022);
- The availability and accessibility of adapted sports at national level is significantly lower in the interior of the country (Mira et al., 2022);
- Portuguese Paralympic athletes show high levels of life satisfaction, high positive affect, low negative affect and good levels of resilience (Mira et al., 2022);
- For Paralympic athletes, the coach is undoubtedly the most critical figure in social support, having the most decisive influence on the athlete, followed by friends, best friends and parents (Mira et al., 2022);
- The source of social support is extremely important for access to sport. However, it does not necessarily have to be positively and significantly associated with resilience or subjective well-being (Mira et al., 2023);
- Athletes with disabilities scored above the mean on the scales assessing resilience and positive affect and below the mean on the scale assessing negative affect in the four social support models analysed (Mira et al., 2022; Mira et al., 2023);
- Technical support is more important for federated athletes with disabilities than specifically for elite (Paralympic) athletes, in contrast to parents (Mira et al., 2022; Mira et al., 2023);
- Support from friends is unanimous in its importance for both federated athletes with disabilities and Paralympic athletes (Mira et al., 2022; Mira et al., 2023);
- In the four models analysed (parents, coach, friends and best friend), there is a direct effect of the type of social support provided with resilience, positive and

negative affect. There is also an indirect effect between types of social support and affect (positive and negative) through resilience (Mira et al., 2023);

- Contrary to what was expected, the different types of social support did not show significant association with levels of resilience. These results do not seem to be in line with some of the literature (Mira et al., 2023);
- There was a positive and significant association between resilience and positive affect, and a negative association between resilience and negative affect. The results show that resilience, more than perceived social support itself, seems to have a preponderant weight in the outcome of sport practice, in this case subjective well-being, in its emotional component (positive and negative affect) (Mira et al., 2023);
- The negative association between resilience and negative affect seems to indicate a possible blocking effect of resilience on negative emotions experienced by athletes; when faced with a given risk situation, the athlete with a disability may react in a vulnerable way, with a negative affective response, or in a resilient way, with a positive affective response (Mira et al., 2022; Mira et al., 2023);
- Analyses of the effects of social support from best friends, coaches, friends and parents showed direct effects on resilience and positive and negative affect (Mira et al., 2022; Mira et al., 2023);
- It is essential that the types of social support work as a team to assist in the various challenges and tasks inherent and adapted to the characteristics and needs of athletes with disabilities and, therefore, the sources of social support must be multiple, from family members, therapists, colleagues, coaches, among others (Mira et al., 2022; Mira et al., 2023);
- In particular, resilience seems to have a highly relevant role and impact on the well-being perceived by athletes, and should be the object of attention and a variable to be enhanced in the context of sport (Mira et al., 2022; Mira et al., 2023);
- Sport, as an environment that exposes athletes to the risks, demands and stresses inherent in the competitive environment, allows athletes with disabilities to strengthen their personal and social resources, as well as their positive attributes and social support network, enabling them to successfully overcome adversity, with above-average levels of resilience (Mira et al., 2022; Mira et al., 2023).

- The effect of social support from best friends, coaches, friends and parents had a direct effect on resilience and positive and negative affect. A positive and significant association was also found between resilience and positive affect, and a negative association between resilience and negative affect (Mira et al., 2022; Mira et al., 2023);
- The strongest relationship of the variables examined was found between resilience and affect, with no relationship between sources of social support and resilience or affect, as hypothesised (Mira et al., 2023);
- With regard to resilience and its negative association with negative affect, this seems to indicate a possible buffering effect of resilience for negative emotional experiences (Cohn et al., 2009; Ong et al., 2006; Ryff, & Singer, 2003).

These conclusive premises reinforce our belief in the importance of adapted sport and its contribution to the well-being and resilience of people with disabilities, as well as the importance of social support. In summary, this research challenges some existing hypotheses and emphasises the complexity of the relationship between social support, resilience and well-being for athletes with disabilities. These findings have implications for various stakeholders in the field of adapted sports, from parents, friends, coaches, therapists, psychologists and society in general, highlighting the importance of supporting, promoting and valuing participation in adapted sport.

Furthermore, this can have practical implications, such as the creation of accessible and inclusive sports programmes, the promotion of education and awareness and the establishment of partnerships to further develop adapted sport. These conclusions are important and should be considered by policy makers and other organisations when developing educational and sporting policies, as it has a positive impact on the well-being, resilience and social support of people with disabilities, contributing to the improvement of their personal development, their quality of life and their integration into society.

5.2 Limitations

As with all research, there are a number of limitations to this study. A limitation of the present study is the lack of differentiation between the type of disability, whether congenital or acquired, and the age group, which may affect the level of resilience

(Machida et al., 2013; Monton et al., 2022). It would be useful to assess the role that other variables may play in this process.

Another limitation is that in the study of Paralympic athletes, the variables were assessed at the post-competition moment of the Tokyo 2020 Paralympic Games, whereas in athletes with disabilities, although assessed at the same time, equal competitive conditions could not be guaranteed due to the heterogeneity and specificity of the modalities and competition calendars (Powell & Myers, 2017).

This study was conducted in Portugal, so the results cannot be generalised to other countries and contexts. However, the main objective was to contribute to the understanding of the reality of adapted sport in Portugal. No experimental study was carried out. These studies avoid systematic errors due to the fact that they control the intervention and are applied randomly, which guarantees that the groups that are defined are comparable.

5.3 Future Research Proposals

It is suggested that in future research it would be interesting to relate psychological variables (e.g., well-being, resilience, social support) to demographic variables (e.g., age group) and to sport practice variables (e.g., years of practice), as well as to consider comparing people with and without disabilities and types of disability.

In parallel, future studies could assess social support, resilience and subjective well-being according to the type of disability, congenital or acquired, and if acquired, in relation to the time of acquisition and needs.

The sources of social support are crucial actors in the access to sport practice of these athletes, so it would be useful to analyse the levels of resilience of parents, friends, best friends and coaches in the models themselves.

Despite the results of this work, it will be important for future studies to use larger samples and longitudinal analyses.

5.4 References

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