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A salutogenic perspective on sport-for-development research

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ABSTRACT

Rationale: Research on positive youth development through sport is confronted with a number of limitations: it lacks a clear theoretical basis of mechanisms underlying life skill development through sport, it has a narrow focus on the sports setting thereby neglecting the interplay between life domains in reaching positive youth development, and the mechanisms underlying the transfer process of newly acquired skills and competences from the sports setting to other life domains are unclear.
Objective: This study aims to advance research in in this field by applying theoretical insights from the salutogenic model of health to address the aforementioned limitations.
Innovation: The salutogenic model of health describes how health and well-being develops in challenging or stressful situations and offers an interesting perspective on the mechanisms underlying youth developmental processes while simultaneously aligning well with the tenets of the positive youth development approach. The application of the salutogenic model of health offered a number of interesting theoretical insights to further understand 1) the mechanisms underlying positive youth development through sport (i.e., enhancing comprehensibility, manageability and meaningfulness), 2) that youth development arises in the interaction between an individual's stressors, resources and sense of coherence across different life domains, and 3) the central role of both generalized and resistance resources and sense of coherence in the transfer of life skills between life domains. Given that sense of coherence plays a vital role in the healthy development of individuals and the transfer of life skills across life domains, it would make sense to strengthen the sense of coherence of youths in sports programs.
Conclusion: Based on this theoretical analysis, several recommendations and considerations for further research on positive youth development through sport are provided.

Credit author statement

Sabina Super: Conceptualization, Formal analysis, Investigation, writing (original and review), Visualization; Kirsten Verkooijen: writing (review and editing), Supervision; Maria Koelen: writing (review and editing), Supervision.

1. Introduction

The ability of sports to promote positive youth development is increasingly recognised by researchers and health professionals. Positive youth development (PYD) refers to a process in which young people strengthen their ability to deal with the stressors they encounter in everyday life. The underlying idea of sport programs aiming to facilitate PYD is that young people acquire skills and competences while participating in sport that, when transferred to other life domains, can have a positive effect on the life prospects of young people, for example at school or in the community (Damon, 2004). A growing body of literature has demonstrated the potential positive effects of sports participation on the development of young people (Bailey et al., 2013; Fraser-Thomas et al., 2005). Research has also demonstrated that participating in a sport is not a sufficient condition for reaching positive youth development outcomes and that the success of sports programs is largely determined by non-sport components (Hartmann, 2003; Super et al., 2019). For example, a supportive sports climate, in which youths can develop meaningful relations with others, is essential for reaching positive youth development (Holt et al., 2017; NRCIM, 2002). Based on research in the PYD field, many researchers contend that sport is a promising avenue for positive youth development (Fraser-Thomas et al., 2005). At the same time, current research is limited in some areas. This article discusses a number of these limitations and offers theoretical insights from the salutogenic model of health (Antonovsky, 1979) to

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advance theory-building in this field. This article starts by shortly summarising the current knowledge on PYD through sport and then discusses several limitations of research in this area. Then an introduction to the salutogenic model of health is offered and the insights from the model are applied to research in the PYD field. Recommendations for practice and considerations for further research are provided.

1.1. Current knowledge on PYD through sport

A large body of research reports on the beneficial outcomes of sports participation for young people (Bailey et al., 2013; Eime et al., 2013; Hermens et al., 2017; Lubans et al., 2012). The Human Capital Model summarises the evidence on these outcomes in six forms of capital: physical, emotional, individual, social, intellectual, and financial (Bailey et al., 2013). The evidence strength for each of these capitals differs. For some reported outcomes of sports participation the evidence is not convincing because the quality of studies is low (Hermens et al., 2017; Lubans et al., 2012) and the studies are mostly cross-sectional (Eime et al., 2013). Hence, it has been difficult to establish a causal relationship between participation in sports and positive youth development outcomes. Next to that, it is well understood that sports participation can also lead to negative experiences and outcomes (Bean et al., 2014). Negative experiences in the sports setting are for example related to poor coach-athlete relationships, pressure to perform, negative peer interactions, lack of self-confidence, and low physical abilities and skills (Fraser-Thomas and Côté, 2009; Super et al., 2017), which are associated with reduced mental health and several risk behaviours (Bean et al., 2014). Because of the potential of sport to produce negative outcomes, there is increasing attention in research for the conditions under which sports programs can contribute to positive youth development (Gould and Carson, 2008; NRCIM, 2002). Examples of these conditions are a supporting climate where coaches and participants have meaningful relations, a motivational climate focusing on fun and enjoyment rather than on competition and excellence, and providing opportunities to belong (Fraser-Thomas et al., 2005; NRCIM, 2002).

Several researchers have attempted to combine the insights on PYD through sport in different frameworks. For example, Holt et al. (2017) have developed a framework of positive youth development through sport based on an extant qualitative literature review. The framework demonstrates how the sports climate is linked to several developmental outcomes through either an implicit or an explicit transfer process. Next to the distinction between implicit and explicit transfer, the framework introduced by Holt et al. (2017) also considers the influence of individual characteristics and factors in the participants' environment on the impact sport programs have on youth developmental outcomes.

Gould and Carson (2008) developed a framework to identify possible explanations for how young people may learn new life skills while participating in sports. These authors identified the coach characteristics, as well as direct and indirect teaching strategies, that are important factors in participants' sports experiences. These sports experiences subsequently lead to positive (or negative) youth development outcomes via two pathways. The first pathway focuses on the social-environmental influences, where it is expected that the participation in sport leads to positive identity changes, membership of a positive peer group, sense of belonging, positive social norms, and an improved perceived competence, self-worth, and locus of control. The second pathway focuses on the utility of life skills that are learned in the sport context. The authors argue that skills such as stress management skills, communication skills, and goal-setting skills can be directly transferred to other life domains (Gould and Carson, 2008). According to the authors, the participation in sports also influences the development of general dispositions, such as self-confidence and self-esteem that can be transferred to other life domains.

The model developed by Pierce et al. (2017) starts from the idea that life skill transfer reflects an interactive developmental process. The authors grounded their model in Bronfenbrenner's bioecological model (1979) recognising that people learn within multiple life domains that influence each other bidirectionally. The model recognises the interplay between the characteristics of individual learners, the learning context and the transfer context in the development and transfer of life skills. In addition, they identified four factors that are important in stimulating the transfer of life skills: the similarity of contexts, the opportunities to use life skills, the support for transfer, and the rewards for transfer.

More recently, there is also attention for the intentionality of life skill development and transfer, with research suggesting that sports programs that adopt a more intentional (i.e., explicit) approach to transfer score significantly higher on positive youth development outcomes than programs adopting the implicit approach (Bean and Forneris, 2016; Turnnidge et al., 2014). Bean et al. (2018) have developed an implicit/explicit continuum of life skill development and transfer based on whether a sports program explicitly: 1) structures the sport context; 2) develops a positive sports climate; 3) discusses the concept of life skills; 4) offers opportunities for practicing life skills; 5) discusses transfer; and 6) offers opportunities for practicing transfer.

1.2. Limitations of research on PYD through sport

Major advances have been made regarding research on PYD through sport in the last decades, but a number of limitations remain that this article aims to address. One of the most important limitations is that research in this field lacks a clear theoretical basis of how life skill development occurs (Coalter, 2015; Hodge et al., 2012). Hodge et al. (2012) have adopted the Self-Determination Theory to support the development of a Life Development Intervention, but emphasize that more empirical research is needed to test the applicability of this theory for understanding life skill development. The framework introduced by Holt et al. (2017) has helped to identify the interlinkages between the sports climate and positive youth development outcomes, but at the same time offers little understanding of how life skill development occurs during sport. The frameworks developed by Gould and Carson (2008) and Pierce et al. (2017) do attempt to identify possible explanations for how young people develop life skills while participating in sport. However, the authors also pointed out that these explanations are based on very little evidence (Gould and Carson, 2008; Pierce et al., 2017), necessitating more theory development and testing to comprehensively capture how sport contributes to positive youth development (Holt et al., 2017).

A second limitation of research into PYD through sport is that it often has a narrow focus on the sports setting, neglecting the interplay of life domains in reaching positive youth development. Currently, research tends to focus on the sport domain separately from other life domains. However, Haudenhuyse et al. (2014b) state that the impact of sports programs can only be understood if we scrutinise the interplay between macro-environmental contexts of sport programs, the characteristics of the program and the characteristics of the participant (p. 149). Similarly, several frameworks that have been described above are positioned in a larger socio-ecological system, recognising that broader macro-systems (such as national policies or cultural norms) influence the impact of sport programs on a micro-system level (Holt et al., 2017; Pierce et al., 2017). The model proposed by Pierce et al. (2017) builds on the bioecological theory from Bronfenbrenner (1979), contending that human development is arising out of the interaction between active human beings and their environment, stressing the importance to study life skill development and transfer across life domains and even across generations. That the developmental outcomes of sports programs are strongly influenced by factors in the environment of the participants is for example demonstrated by Kay and Spaaij (2011). They studied sport programs in Brazil, India, and Zambia and concluded that families play an important role in the extent to which programs have a positive impact on the participants. For example, families can support or resist youth's participation in sport and they can influence how youths experience their participation in sport (Kay and Spaaij, 2011). That is why

researchers have called for the contextualisation of sports, where broader social, economic, and political issues are included in the analysis of the impact of sport programs (Haudenhuyse et al., 2014b). This interconnectedness of the everyday-life context of participants and the potential impact of sport programs on youth developmental outcomes has gained little attention in positive youth development through sport frameworks.

Another area that requires more theory-building is the transfer process that is crucial for positive youth development. The framework by Holt et al. (2017) describes how the skills and competences that are learned during the participation in sport are either explicitly or implicitly applied in other life domains such as school or the community. This seems to be a rather linear view of life skill development and transfer, a view that is dominant in research on PYD through sport. However, there is evidence that many contextual factors influence the learning process, as well as the transfer of life skills from the sports setting to other life domains and vice versa (Jacobs and Wright, 2018; Pierce et al., 2017). More importantly, both the learning process and the transfer process are dynamic processes (Jacobs and Wright, 2018), necessitating an interactive perspective of transfer in which the development of young people within the sports setting is considered in close connection to their development in other life domains. Jacobs and Wright (2018) called the transfer process a 'cognitive bridging process', emphasising that cognitive connections need to be made by the learner between the in-program learning and the application of these learned outcomes in other life domains. This cognitive bridging process is influenced by a learner's motivated use, experiential value, and ability to expand on what was originally taught (i.e., expansion of perceptions). Pierce et al. (2017) have made an effort to identify factors that promote successful transfer of life skills, while acknowledging that further research is needed to identify the many contextual factors that influence successful transfer of life skills, also from different scientific perspectives.

1.3. The salutogenic model of health

In an attempt to address the aforementioned limitations, the salutogenic model of health is adopted to enhance our theoretical understanding of positive youth development processes. First introduced by the medical sociologist Antonovsky (1979), the salutogenic model of health focuses on the question how people manage everyday-life stressors in such a way that they maintain or improve their health. The salutogenic perspective focuses on the resources that people have available to meet the demands of everyday life, the generalized and specific resistance resources, and their ability to recognise and use these resources for this purpose, the sense of coherence.

In the salutogenic model of health, health is seen as a continuum running from 'total absence of health' to 'total health' (Antonovsky, 1979). Antonovsky (1979) labelled it the *health ease/dis-ease continuum*. Movement along this continuum is initiated when people are confronted with stressors; that is, "a demand made by the internal or external environment of an organism that upsets its homeostasis (Antonovsky, 1979: 72)". When people are able to successfully manage the stressors, they can prevent these stressors to turn into stress and they can maintain their health status or move towards the 'ease' part of the continuum. Conversely, people who are unable to manage the stressors will move towards the 'dis-ease' part of the continuum. In other words, stressors are not synonymous to stress, but should rather be considered as challenges that may lead to positive learning experiences when people effectively cope with these stressors. Generalized and specific resistance resources are important factors in determining people's ability to successfully cope with stressors and manage tension. Resources are available within people themselves (e.g., attitude, knowledge, self-efficacy beliefs) and within their environment (e.g., social support, health services). Whereas generalized resistance resources have a wide-ranging utility, for example coping resources (Christensen and Smith, 2018), specific resistance resources can be used in specific settings and for specific stressors, for example a qualified sports coach (Super et al., 2018). Both generalized and specific resistance resources can facilitate effective stressor management and prevent stressors from turning into stress.

An important concept in the salutogenic model of health is *sense of coherence* (SOC), which Antonovsky (1987) defined as "a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that (1) the stimuli deriving from one's internal and external environments in the course of living are structured, predictable, and explicable; (2) the resources are available to one to meet the demands posed by these stimuli; and (3) these demands are challenges, worthy of investment and engagement (p. 19)". The three components of SOC—that is, comprehensibility, manageability, and meaningfulness—play an important role in orienting people towards stressors and the resources that they have available to deal with these. People with a stronger SOC are better able to understand the stressor (i.e., comprehensibility), are better able to select an appropriate strategy to deal with the stressor (i.e., manageability), and have a stronger feeling that engaging with the stressors is a meaningful process (i.e., meaningfulness).

The salutogenic model of health offers a comprehensive understanding of how people may learn to cope with everyday-life stressors in a health-promoting way. Current research adopting the salutogenic perspective has demonstrated a positive effect of SOC on health. More specifically, it seems that groups low in SOC are especially vulnerable to the hardships in life (Surtees et al., 2007), leading to poorer lifestyle choices (Wainwright et al., 2008), increased disease incidence and mortality risks (Poppius et al., 2006; Super et al., 2014) and reduced mental health (Eriksson and Lindström, 2007). Researchers have also begun to study how SOC develops in childhood and early adulthood (García-Moya et al., 2013; Marsh et al., 2007; Slootjes et al., 2017; Super et al., 2016), showing the complexity of the salutogenic model of health with its interplay between resources, stressors and SOC in determining a healthy development. In addition, several studies have shown that interventions can influence SOC levels, both in clinical settings (Forsberg et al., 2010; Sarid et al., 2010; Weissbecker et al., 2002) as well as in community settings (Kähönen et al., 2012; Skodova; Lajciakova, 2013; Vastamäki et al., 2009). For example, it was demonstrated that levels of SOC increased significantly amongst people with psychiatric disabilities following a 12-month lifestyle intervention as compared to a control group (Forsberg et al., 2010).

To the best of the authors' knowledge, the salutogenic model of health has only sparsely been adopted in the sports setting. Yet, the salutogenic perspective can provide new theoretical insights on the processes underlying life skill development and transferability and it aligns well with the tenets of the positive youth development approach. For example, both approaches acknowledge the importance of assets and resources for leading a healthy and productive life, they both consider that changes in an individual's development or health originate from the interaction of the individual with his/her environment and, perhaps most distinctively, both approaches focus on people's healthy or salutogenic development, rather than on their unhealthy or pathogenic development (Antonovsky, 1979; Dell et al., 2013).

1.4. Applying the salutogenic model of health to sport

1.4.1. Mechanisms underlying positive and negative youth development

The development of SOC (see Fig. 1) occurs when people are confronted with life experiences characterised by consistency (i.e., strengthening comprehensibility), underload-overload balance (i.e., strengthening manageability), and socially valued decision-making (i.e., strengthening manageability) (Antonovsky, 1987). These life experiences occur when generalized and specific resistance resources are successfully applied to deal with stressors. Such life experiences may be present in the sports setting, as youths engage with stressors and apply

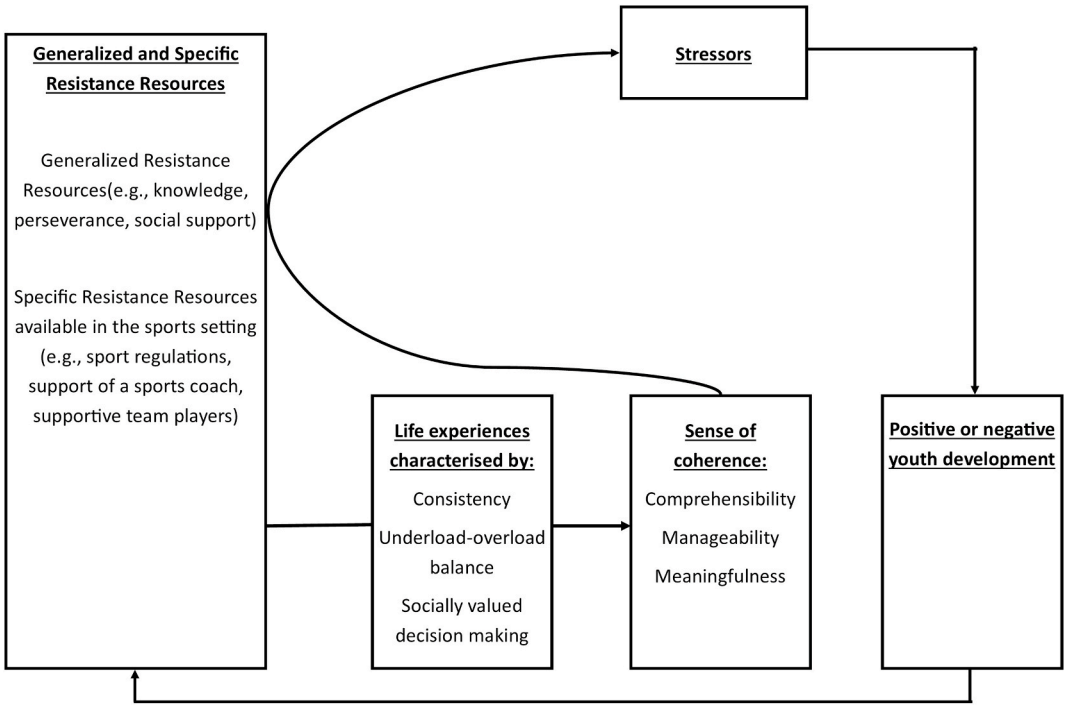

Fig. 1. The salutogenic model of health applied to the sport-for-development field (adapted from Super et al., 2016).

resources to deal with these. For example, a study among socially vulnerable youth demonstrated that positive sports experiences occurred when youths thought that sports participation offered them nice challenges and when they felt they were able to identify the skills they possessed in the sports setting (Super et al., 2017). In contrast, negative sports experiences arose when youths found that the challenges in the sports setting were too difficult and when they were unaware of the skills they possessed to deal with these challenges. Important to note here is that, for youth development to take place, a balance between stressors and resources is essential. Researchers have frequently warned that sports participation may also lead to negative experiences and may push youths further down the spiral of vulnerability when they are confronted for example with failure, rejection or isolation in the sports setting (Bean et al., 2014; Fraser-Thomas and Côté, 2009). This may be explained by the misbalance between available resources and the stressors in the sports setting, leading to negative life experiences, stress, and pathogenic development. In line with this thought that the balance between stressors and resources is important, there is a large body of literature available regarding the role of resilience in sport performance (Fletcher and Sarkar, 2012; Galli; Gonzalez, 2015; Sarkar and Fletcher, 2014). A review of stressors and protective factors in the sports setting showed the diversity and complexity of factors that play a role demonstrating resilience (Fletcher and Sarkar, 2012; Sarkar and Fletcher, 2014). Stressors were related not only to inherent competitive elements of sports, but also to organisational (e.g., travel arrangements) and personal aspects (e.g., parental involvement). Similarly, the authors identified five factors that promote resilience in sport performers: positive personality, motivation, confidence, focus, and perceived social support. By offering resilience training to sports participants, people may increase their protective factors, making them better able to deal with the stressors they encounter (Fletcher and Sarkar, 2016). This may not only improve their sport performance, but perhaps more importantly, may also lead to positive learning experiences that can contribute to the personal development of sports participants.

Perhaps one of the most important resources in the sports setting is the sports coach (Camiré et al., 2011; Santos et al., 2016; Super et al., 2018; Trottier; Robitaille, 2014), who cannot only manage the challenges in such a way that youths are able to deal with them (i.e., creating manageable challenges) but can also increase the visibility of the skills that youths possess to deal with these challenges (i.e., creating comprehensibility). For example, sports coaches can ask questions instead of providing instructions, thereby increasing comprehensibility, or coaches can implement specific rules on communication during a game thereby increasing manageability (Super et al., 2017). When youths are engaged with challenges in the sports setting and apply resources to deal with these challenges, this may increase their SOC. More specifically, they may learn about the skills they possess, develop confidence that they can learn new things and apply appropriate resources, and they may develop a liking for dealing with challenges from which they can also benefit in other life domains (Super et al., 2018).

1.4.2. A broader focus on positive youth development: considering the interrelatedness of life domains

According to the salutogenic model of health, the development of health results from the combined effect of stressors, resources, and people's ability to deal with stressors (Vinje et al., 2017). These three aspects are not domain specific, meaning that they are not restricted to operate or to be relevant in one specific life domain. For example, the SOC captures a global orientation that is relevant across different life domains (e.g., work, family, community) and across various life phases. Following this insight, youth development also arises from the interaction of stressors, resources and the youths' ability to deal with stressors across different life domains. If we want to understand how youth development is influenced by the participation in sport, we need to investigate how stressors, resources, and the ability to deal with stressors develop across life domains, not solely within the sports setting (see Fig. 2). In this sense, youth development is a dynamic process that can result in either positive or negative development and that can fluctuate continuously depending on the youth's life situation, the stressors they encounter and the resources they develop. For example the stressors that youths encounter in the community domain (e.g., a lack of social support) may also be of importance in the sports setting (e.g., a lack of peer support). To support this insight further, Andrews and Andrews (2003) found that the sports activities in the secure unit that

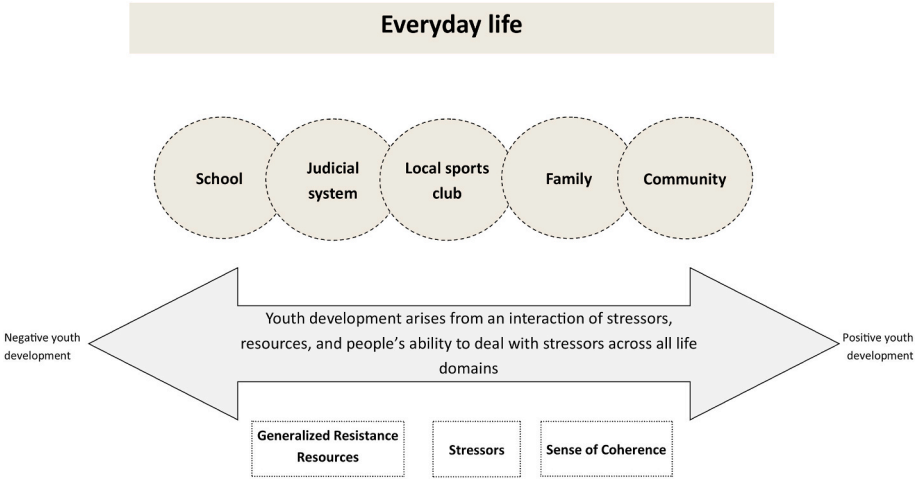

Fig. 2. The interconnectedness of life domains in achieving youth development.

they studied could exacerbate the youth's anxiety of social comparison, with which they were already struggling in everyday life. In other words, the stressors in the secure unit were closely linked to the stressors they experienced in everyday life. In a similar vein, generalized resistance resources (e.g., self-confidence, knowledge, money) can be applied to resolve tension from different stressors in different life domains (Mittelmark et al., 2017). This demonstrates that in defining a person's health or personal development, life domains cannot be considered separately from one another, but should always be considered in tandem. In this respect, it is valuable to stress the important role that sports coaches play in connecting the different life domains in which youths live, which should be part of the coaching philosophy when aiming to facilitate positive youth development (Camiré et al., 2011, 2012; Super et al., 2018). On the one hand this means that coaches should be sensitive to the developmental status of the participating youths and the issues they are facing in everyday-life, and on the other hand it means that coaches should explicitly discuss the applicability of life skills in other life domains than the sports setting. In this way, we are able to strengthen the positive development of youths by connecting relevant developments across different life domains.

Recognising that the development of young people arises in the interaction between different life domains, amongst which the sports domain, a more holistic approach is needed to understand how young people develop while participating in sport. We advocate taking a life-course perspective when analysing the role of sports participation in the development of young people, studying the development of people in changing and dynamic contexts. A life-course approach is useful for understanding the developmental trajectories of people over time, including the different context or life domains in which people lead their lives (Devine, 2005). It specifically allows for studying the interconnectedness of factors (e.g., stressors, resources, SOC) across life domains. A life-course perspective is traditionally used to *quantitatively* study illness trajectories (Carpentier et al., 2010; Lindström et al., 2013), but has recently also shown its merits in *qualitative* research on mechanisms underlying a healthy development (Super et al., 2019; Yingwattanakul; Moschis, 2017). A study among young adults that had been socially vulnerable in their childhood demonstrated how experiences of childhood vulnerability shaped the role that sports participation had in their childhood (Super et al., 2019). In addition, several studies have demonstrated that the sports experiences of young people are coloured by their everyday-life experiences (Haudenhuyse et al., 2014a; Super et al., 2017) and have called for the contextualisation of sports experiences (Haudenhuyse et al., 2014b).

1.4.3. Understanding the transfer of life skills

With regards to the transfer of life skills, the salutogenic model of health also offers a number of interesting insights. Arguably, the competences and skills that youths develop in the sports setting are in salutogenic terms resources that youths can use across different life domains. These resources, such as communication skills or self-confidence, can be applied in other life domains as long as the SOC is strong enough. SOC is seen as the driving force for the development towards health (Antonovsky, 1987), or in this case, positive youth development. Jacobs and Wright (2018) have reviewed the literature for learning theories that could help explain when the transfer of life skills occurs. They argue that for the transfer of life skills to successfully occur, a participant must be 1) equipped with knowledge and strategies of the learned content, 2) able to readily access those resources, and 3) motivated to adopt the life skill in another context. These three conditions are strongly similar to the three components of SOC (i.e., comprehensibility, manageability and meaningfulness), emphasising the importance of these components in the transfer process. Moreover, the idea that a strong SOC might facilitate the transfer of life skills across different life domains aligns with the observation made by authors that seeing congruency between learning contexts promotes life skill transfer (Burke and Hutchins, 2007; Pierce et al., 2017). In other words, a stronger comprehensibility allows people to better understand how life skills can be relevant in different contexts and how these can be used to solve different types of stressors.

Because of the central role of SOC in youth development, it makes sense to strengthen the SOC of young people through creating opportunities for sense-of-coherence-enhancing life experiences. For people to encounter these life experiences they need to select and apply resources in challenging situations, for example using communication skills in a competitive match to improve teamwork. However, what is difficult about strengthening the SOC is that selecting and applying resources in challenging situations would require at least a moderate SOC (Lundberg, 1996; Super et al., 2016). Doing so may sound very complex, but it links very intuitively to concerns raised by researchers that sports participation can reproduce social exclusion. "The realities on the ground suggest that such dimensions of inclusion are experienced by the few and not the majority, inclusion questionably becomes an opportunity for those already with a sense of agency, the talented and the targeted" (Collison et al., 2017: 230). In other words, only those with at least a moderate SOC could benefit from the potential positive effects of sports participation, thereby excluding potential benefits from marginalised groups.

Another insight from the salutogenic model of health is that the resources that youths develop while participating in sport could be either specific (i.e., communication skills in a match) or generalized resistance

resources (i.e., general communication skills). Although both specific and generalized resistance resources have their utility, specific resources are only applied in one specific context or setting (Mittelmark et al., 2017). In this way, it would be possible that the self-confidence that youths develop while participating in sport, for example, is not transferable to other life domains because it is a specific resistance resource that is only applicable in the specific setting of a sports activity. The distinction between general and specific resources has been made, for example, for meta-cognitive skills such as self-regulatory skills. Several authors have suggested that self-regulatory skills are domain-general skills that are relevant and applicable in different life domains (Jonker, 2011). However, other researchers have suggested that meta-cognitive skills, such as self-regulatory skills, are domain-specific (van der Stel; Veenman, 2008), which means that young people may demonstrate good self-regulatory skills within the sports setting, but at the same time report low ability of self-regulation in other life domains. To promote the transfer of skills and competences from the sports setting to other life domains, youths need to be encouraged to consider these skills and competences as generalized resistance resources. It is exactly at this point that the explicit approach to transfer may prove to be useful, for example by implementing exercises to demonstrate the applicability of the developed competences in other life domains (Jacobs and Wright, 2018; Turnnidge et al., 2014).

2. Discussion

2.1. Recommendations for practice

In this article, we aimed to address a number of limitations of research on PYD through sport by applying insights from the salutogenic model of health. Given that SOC plays a vital role in the healthy development of individuals and the transfer of life skills across life domains, we argued that it makes sense to strengthen the SOC of youths in sports programs. Doing so capacitates them to understand that the stressors they meet in everyday life are appropriate for using the life skill they have learned in the sport program (or elsewhere) and it would provide them with sufficient manageability and meaningfulness to use these life skills in those challenging situations. Studies have suggested that SOC can be strengthened and developed in health promotion interventions (Forsberg et al., 2010; Sarid et al., 2010), but the processes underlying the development of SOC are very complex. From an examination of available literature on the salutogenic model of health, three opportunities for strengthening SOC can be identified. First, it was found that health professionals can assist people in identifying, selecting, and using generalized resistance resources that are available to them to deal with everyday-life stressors (Super et al., 2016). This behavioural mechanism brings up the possibility to intervene in people's behavioural responses to challenging situations in a health-promoting way. Second, it was found that people can be trained to see challenging situations as more consistent, with a load balance, and as socially valuable (Super et al., 2016). This perceptual mechanism allows health professionals to train people to see the world as more comprehensible, manageable, and meaningful. These two processes of *empowerment* and *reflection* are important for the development of SOC, and could be incorporated in sport programs to support the positive development of participating youth (Super et al., 2018). A third opportunity for strengthening SOC is to promote the availability of specific resistance resources to overcome specific stressors of particular groups to participate in sports. An example of such specific resistance resources is the Youth Sports Fund that was introduced in the Netherlands, which offers financial support for families living in poverty to pay for a club membership or sports clothes for their children. Another example is to offer adjusted sports programs for people with mild intellectual disabilities or physical disabilities. A sports coach that is trained to work with these groups can adjust the sports activities to match the developmental levels of the participant youth, thereby promoting positive feelings of self-worth, self-efficacy, and social acceptance. By promoting the availability of specific resistance resources, an inclusive sports environment can be created that facilitates the participation of vulnerable groups that may otherwise be unable to attend and benefit from these programs.

Structured sport programs have been advocated as a promising avenue specifically for young people that are at-risk or that are vulnerable. A recent literature review showed that the stress of poverty and vulnerability negatively affects decision-making through four different pathways making vulnerability a persistent issue that is difficult to resolve (Sheehy-Skeffington and Rea, 2017). According to the authors, vulnerable people are likely to perform worse on selective attention and inhibitory control (i.e., thinking processes), are more likely to focus on current rewards rather than on future gains (i.e., behavioural patterns), have a lower appraisal of their ability to influence life outcomes (i.e., navigating life's challenges), and experience a reduced trust in the world around them (i.e., appraisal of the social world). Strengthening the SOC of young people and increasing the generalized resistance resources available to them, also implies an improvement in a number of these pathways, making it more likely that long-term positive outcomes may be reached across different life domains. As the three components of SOC are strongly interconnected and together shape the ability of people to deal with stressors (Super et al., 2016), strategies to promote youth development should focus on strengthening the comprehensibility, manageability, and meaningfulness of young people simultaneously (Super et al., 2018). If sport programs succeed in strengthening SOC, they allow participants to break through the spiral of vulnerability and instigate a self-reinforcing process of personal development in which the youths' capacity to deal with everyday life challenges is growing.

2.2. Suggestions for further research

The attention for the transfer process is increasing in research, as it is one of the essential processes in positive youth development (Turnnidge et al., 2014). Jacobs and Wright (2018) reviewed the literature on learning theory and based on these theories distinguish between near transfer and far transfer. Near transfer occurs when the original learning setting is relatively similar to the new setting in which life skill can be applied. Far transfer enables youth to apply the learned life skills in varying life contexts that are different from the original learning setting. Sport-for-development initiatives aim to promote far transfer of skills, but this is more difficult to facilitate than near transfer (Leberman et al., 2006) and it requires more higher order cognitive skills. Therefore, many researchers emphasize the importance of explicit life skill teaching and the necessity to implement explicit activities in the sports program that facilitate life skill transferability (Bean and Forneris, 2016; Trottier; Robitaille, 2014). Based on the analysis in this paper it could also be argued that for far transfer to occur, having generalized resistance resources, rather than specific resistance resources, is required. As it is yet unknown how young people orient themselves towards specific and generalized resources, and more specifically what defines a resource to be either general or specific, more research is needed to study this process.

To promote youth development across different life domains and to create opportunities for far transfer, the collaborative effort of relevant institutions in the different life domains in which these youths live (e.g., school, work, family, community) is essential. For example, in promoting the conditions for far transfer, paying continuous attention to showing the applicability of life skills in changing situations is vital. Doing so necessitates an integral strategy to promote positive youth development within and across the different institutions and life domains. The concept of SOC and the salutogenic model of health could support studies to examine how such an integral strategy for positive youth development strengthens the youths' capacity to deal with the challenges they face in everyday life. A further scrutiny of life experiences that can strengthen SOC would be an important step in this

respect, because very little empirical studies have been conducted in this area and learning experiences are key in understanding youth development. In a recent study it was found that the development of the meaningfulness component does not only result from socially-valued decision making but can also result from life experiences of helping others, feeling a sense of belonging or through religion (Slootjes et al., 2017). More insights in sense-of-coherence-enhancing life experiences could improve the implementation of a supporting sports climate in sport programs.

3. Conclusions

Current research address a number of limitations of research on PYD through sport: It lacks a clear theoretical basis of mechanisms underlying life skill development through sport, it has a narrow focus on the sports setting thereby neglecting the interplay between life domains in reaching positive youth development, and the mechanisms underlying the transfer process of newly acquired skills and competences from the sports setting to other life domains are unclear. The application of the salutogenic model of health offered a number of interesting theoretical insights to further understand 1) the mechanisms underlying positive youth development through sport (i.e., enhancing comprehensibility, manageability and meaningfulness); 2) understand that youth development arises in the interaction between an individual's stressors, resources and SOC across different life domains; and 3) understand the central role of both generalized and resistance resources and SOC in the transfer of life skills between life domains. A focus on strengthening SOC in sport programs for young people can be a strong catalyst for positive youth development.

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