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RESEARCH PAPER



Physical-activity support for people with intellectual disabilities: a theory-informed qualitative study exploring the direct support professionals' perspective

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ABSTRACT

Purpose: The study aims to explore factors that influence (facilitate or impede) direct support professionals supporting people with intellectual disabilities in engaging in physical activity. Influencing factors will be synthesized into a conceptual model to set the stage for developing future interventions and policies to change direct support professional behavior.

Method: Based on the Theoretical Domains Framework, semi-structured interviews were conducted with 25 direct support professionals of people with mild to profound intellectual disabilities. Influencing factors were analyzed using both inductive and deductive coding strategies. The theoretical sources of behavior (i.e., capability, opportunity, and motivation) were leading components in the development of a conceptual model.

Results: Five influential factors facilitating or impeding physical-activity support were isolated that related to direct support professionals' capability, eight to the opportunities afforded them, and 11 to their motivation. Another six inductively emerged, which related to the characteristics of people with intellectual disabilities and which then influenced the capability, opportunity, or motivation to engage in physical-activity support by direct support professionals.

Conclusions: Although experiences differed, the conceptual model developed here provides theoretically based targets for a comprehensive approach to changing direct support professional behavior and thus promoting the support of physical activity in people with intellectual disabilities.

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People with intellectual disabilities; physical-activity support; role of direct support professionals; barriers; facilitators; Theoretical Domains Framework

Introduction

Professional support from others, or lack thereof, is often indicated for people with mild to moderate intellectual disabilities as being a factor that influences whether or not they participate in physical activity [1,2]. Moreover, direct support professionals play an essential role in facilitating physical activity for people with severe or profound intellectual disabilities [3–6]. Likewise, interventions aimed at reducing physical-inactivity levels in people with intellectual disabilities are recommended to focus on the behavior of direct support professionals [1,7,8]. What specific factors direct support professionals experience as facilitating or impeding when supporting people with intellectual disabilities in engaging in physical activity will likely affect how they support people with intellectual disabilities. An overview of potential factors that influence direct support professionals' physical-activity support provides important information in order to achieve structural increases in physical activity. A systematic review, however, shows that hardly any attention has been paid to such factors [2].

Determining the factors related to the behavior of direct support professionals is best done by using a theoretical framework focused on behavior and behavioral change [8]. Furthermore, the use of a theory-informed approach encourages the identification of those factors that people may not ordinarily report but that have an important influence on their behavior [9]. A widely used theoretical framework focusing on behavior and behavioral change is the Theoretical Domains Framework [8,10–12]. The

Theoretical Domains Framework was developed by taking a systematic consensus approach. The framework consists of 14 theoretical domains, taken from both psychological and organizational constructs, that cover possible influences on behavior ([11,12]; see Figure 1). A complementary theoretical approach was developed focusing on the essential sources of nature of behavior of the 14 domains in terms of *Capability*, *Opportunity*, and *Motivation*, which is called the "COM-B system" ([11,13]; see Figure 1). Capability is defined as the professionals' psychological and physical ability to enact a behavior, which includes having the necessary knowledge and skills. Opportunity is defined as any circumstance in the physical or social environment that influences a behavior: all factors that are external to the professional. Motivation is defined as all those brain processes that energize and direct the behavior of the professional [13]. These sources interact to generate behavior that in turn can alter capability, opportunity, and motivation [13].

Targeting a change in the nature of the behavior of direct support professionals, however, requires an understanding of the influences on the behavior under study, in the context in which they occur. To our knowledge, the influences on the behavior of direct support professionals supporting people with intellectual disabilities in physical activity have not been previously investigated. Therefore, this study mainly aims to explore factors that influence (facilitate or impede) direct support professionals, using the Theoretical Domains Framework. Additionally, the factors will be synthesized into the COM-B model to set the stage for developing the components of future interventions and policies to

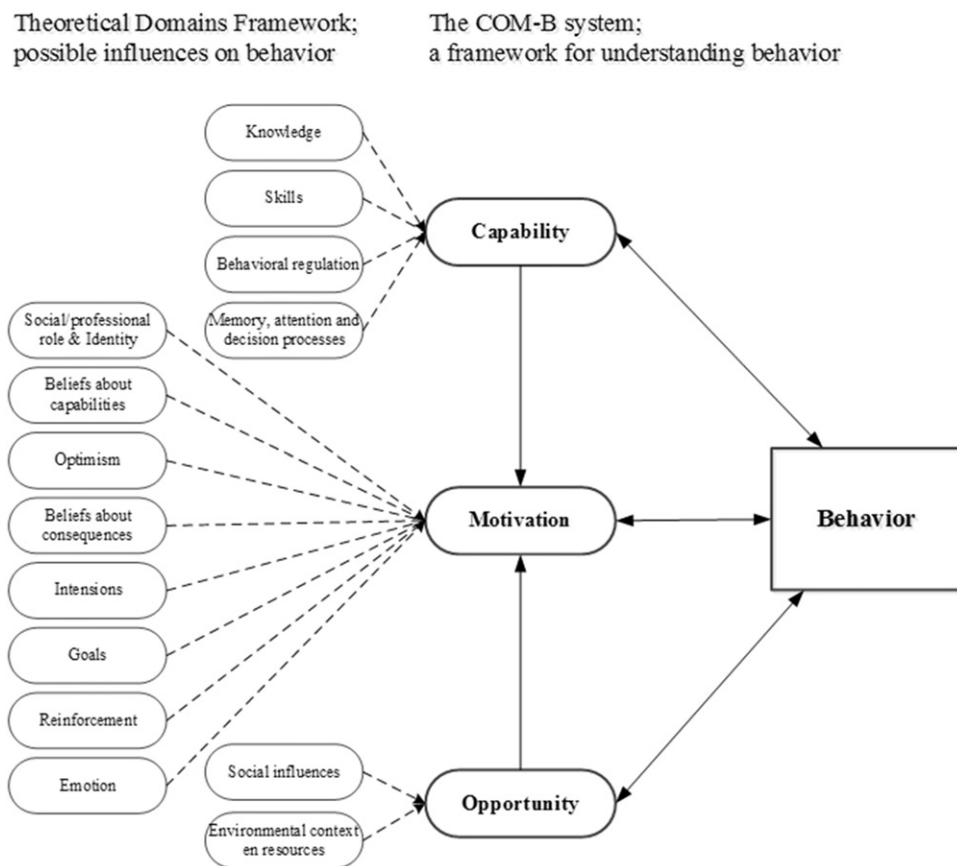


Figure 1. Mapping of the 14 domains of the Theoretical Domains Framework onto the COM-B system.

change behavior of direct support professionals and thus reduce physical inactivity in people with intellectual disabilities.

Method

We used a qualitative research design. The Theoretical Domains Framework informed both the data collection and data analysis. Semi-structured interviews were conducted with direct support professionals who support people with intellectual disabilities in several facilities in the Netherlands. The behavior of interest was supporting physical activities in people with intellectual disabilities.

Participants

Awareness for this study was first raised by advertising online in five residential facilities providing support to people with intellectual disabilities in the northern part of the Netherlands, and later in a national information platform for direct support professionals and via social media. A maximum variation purposive sampling was used [14]. Potential participants were asked to register for participation and filled out a short demographic questionnaire that included questions about their work location and about the characteristics of the people with whom they worked. Participants were included if they were working at a living unit and/or a day activity center offering support to people with intellectual disabilities in various activities of daily life. A final sample of 25 direct support professionals participated in this study. All direct support professionals had a formal professional qualification (i.e., at least vocational education). Most of the participants ($n=15$) were working at a living unit for people with intellectual disabilities, six

participants were working at a day activity center, and another four professionals were working at a location with both living and daycare services. The participants worked at that time an average of 27.7 h per week (range: 8–50). Their average work experience in the support of people with intellectual disabilities ranged from 2 months to 48 years ($M=14$ years) and their average experience in their current work setting ranged from 2 months to 15 years ($M=4$ years). The participants supported a variety of people in terms of intellectual disability (mild to profound), motor or physical limitations (none to profound), and age (6 to 83 years).

Data collection and procedures

A semi-structured interview protocol was developed based on the Theoretical Domains Framework [11,12], and results of a systematic review identifying barriers and facilitators of physical activity in people with intellectual disabilities [2]. Table 1 presents detailed information about the interview questions and related theoretical domains of the Theoretical Domains Framework [12]. The results of the systematic review were used to determine the content of the key questions and follow-up prompts. In addition, general follow-up prompts were used to help some of the participants to elaborate on their own experiences (e.g., "Can you think of an example?").

The interview protocol was tested in a pilot interview with a direct support person to ensure that the protocol was understandable and comprehensive. The pilot interview was transcribed verbatim by the first author, and discussed with the participant and the research team (second and third authors). This resulted in more structured interviews and the simplification of a number of questions. In addition, the first author transcribed the first five interviews during the

Table 1. Interview questions and connection to the domains of the Theoretical Domains Framework.

Domain	Key question and <i>follow-up prompts</i>
Nature of behaviors*	Can you tell us something about the current movement activities that are offered to the people you provide support for? <i>Are all people participating? What kind of movement activities? Frequency and duration? Planned or unplanned? Day of week? Location?</i>
Knowledge; skills	Are you able to think of movement activities that are suitable for the people you are supporting? <i>If so, what does this movement facilitate? If not, why not?</i>
Knowledge; beliefs about consequences	What are your reasons for offering movement activities to the people you are supporting?
Knowledge; beliefs about consequences	What are your reasons for not offering movement activities to the people you are supporting?
Motivation and goals	What is your opinion about performing movement activities with the people you are supporting?
Social/professional role and identity	Does your job description – as a direct support professional – include the support of movement activities?
Social influences	Are there any other people who influence the offering of movement activities to the people you are supporting? <i>If so, who influences you? If so, can you say more about the way it affects you?</i>
Beliefs about capabilities; Emotion	How capable do you feel about supporting movement activities for those you work with?
Memory, attention, and decision processes	What are reasons for you to cancel a scheduled movement activity?
Memory, attention, and decision processes; Social influences	Are there any other people who influence the decision to cancel a scheduled movement activity? <i>If so, who influences you? If so, can you say more about the way it affects the decision?</i>
Social influences	To what extent are you stimulated or supported by your direct colleagues in offering and/or performing movement activities with the people you are supporting?
Environmental context and resources	To what extent are you facilitated by your facility in offering and/or performing movement activities with the people you work?
Beliefs about capabilities; Behavioral regulation	Do you think that you can offer sufficient movement activities within the current daily program for the people you are supporting? <i>Does this apply to all the people you are working with? If not, what would help you to improve the support of movement activities for all people?</i>

*Starting question for each interview; first version of the Theoretical Domains Framework was used [11].

data collection to refine the interview protocol, resulting in a better understanding of the behavior and its context [10].

The manner in which the interview was conducted (face-to-face or by telephone) was determined by the preference of the participant. The majority of the participants ($n = 16$) chose an interview by telephone. All interviews were recorded digitally. The interviews were conducted by the first author and three trained Special Needs and Youth Care students between May 2015 and April 2016. The first author conducted the majority of the interviews ($n = 21$).

Qualitative analysis

The interviews were transcribed into written form. Participants' names and institutions were anonymized. The first author transcribed a selection of the interviews (21%) to become familiar with the data. The rest of the interviews were transcribed by students, who were instructed to write down explicitly what was said in the interview by the interviewer and the respondent. The first author checked for accuracy by arbitrarily selecting fragments and listening to the corresponding audio files. The record of one participant was not properly recorded, resulting in a total of 24 transcripts in the analyses.

These 24 transcripts were subjected to qualitative synthesis, including both inductive and deductive coding strategies. Table 2 provides an overview of the aims of and actions for the consecutive steps of the coding process. The actions and outcomes of each step were discussed with the second and third authors. Author's assumptions, prior knowledge, and persona were considered during these discussion meetings. Additionally, we engaged with an independent researcher to reduce potential bias. All analyses were supported by ATLAS.ti software 7.5.12 and Microsoft Excel 2010.

Results

A total of 30 factors were isolated: five related to capability, eight related to opportunity, 11 related to motivation, and a final six related to the characteristics of people with intellectual disabilities (see Figure 2).

Capability

Five influencing factors were isolated regarding participants' ability to carry out physical-activity support. The majority of the participants ($n = 15$) noted that they were aware of the importance of physical activity in people with intellectual disabilities and their own supporting role. While they were aware of the situation, many mentioned that they do not know any suitable physical activities for people with intellectual disabilities ($n = 17$) or that they had difficulties with performing ($n = 12$) or implementing ($n = 9$) physical-activity support. Education was described by some of the participants as helpful in increasing their ability. One participant elaborated on the difficulties and her own role in this:

While we all know that it is particularly important, physical activity is still rather neglected in the support we give. Everyone is really aware of the importance, but to really integrate it into your daily activities, now that is a bit more difficult, unfortunately. (Direct support professional supporting people with severe to profound intellectual disabilities in a living unit; work experiences in years = 5)

Opportunity

Eight influential factors were isolated regarding the opportunities participants had to engage in physical-activity support. Factors within this condition consisted of practical support, social influences, and various factors in the environmental context (i.e.,

Table 2. The coding process by step, action, and aim.

Step	Action	Aim
1	Transcribing a selection of the interviews and read all transcripts in-depth several times	Familiarization with the data
2	Generating initial codes by an inductive strategy (i.e., open coding)	Achievement of focused and initial coded data
3	Merging and recoding all coded data with both inductive and deductive coding strategies	Reduction of the number of codes
4	Categorizing the codes into the COM-B model, the researchers allowed important categories to emerge, which were not guided by the theory	Achievement of concept coding book
5	Cross checking of coding strategies and interpretation of data by an independent researchers	Strengthen the claims of the coding book
6	Verifying de coding book with all transcripts, and counting the direction of influence (impeding or facilitating)	Achievement of the results as presented in this manuscript.

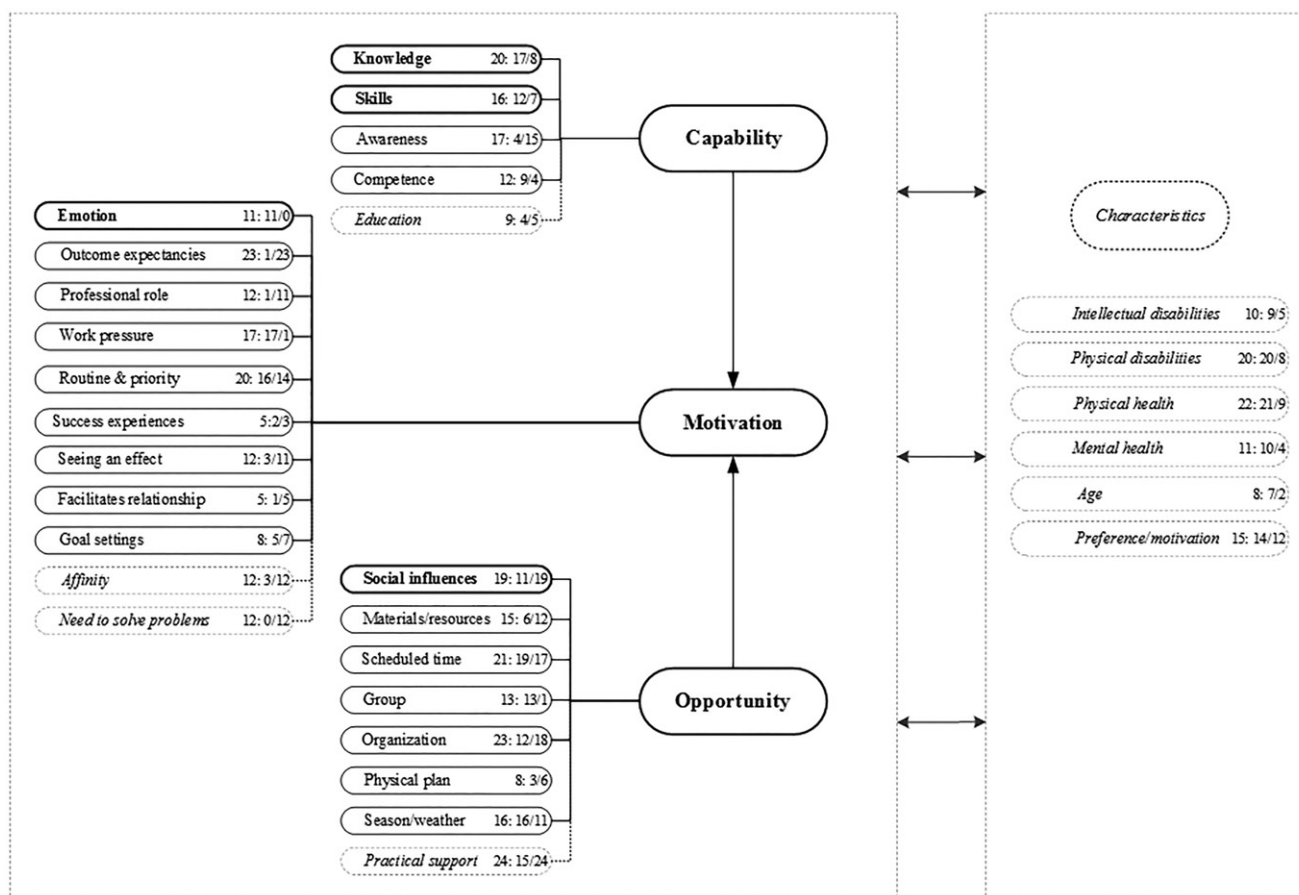


Figure 2. Conceptual model for understanding the behavior of direct support professionals while supporting people with intellectual disabilities engaging in physical activity. Note: Categories and influencing factors italicized are fully determined by this study's data (i.e., open codes); Categories and influencing factors in bold are fully theory-informed (i.e., deductive codes). After each factor, it is indicated how many participants experience this factor and in what way (impeding/facilitating).

materials and resources; scheduled time; season/weather; and group, organizational aspects, and physical plan). The influence of whether or not practical support was available was mentioned by all participants. Practical support is most commonly referred to in terms of parents (performance and financing) and volunteers (performance). In addition, trainees and/or experts, such as a physiotherapist, are sometimes the ones who provide or facilitate the support of physical activities. A lack of these stakeholders impedes support for 15 participants. The majority of the participants ($n = 19$) describe the social influences (e.g., by encouragement or expectations) as impeding or facilitating physical-activity support: colleagues are the ones most often referred to as

influential. One participant described the influences of colleagues and a trainee as follows:

We can really learn from each other, and I must say that having trainees who are physical activity-minded helps us to really keep our attention constantly focused on this. (Direct support professional supporting people with severe to profound intellectual disabilities in a location with both living and daycare services; work experiences in years = 5)

Factors in the environmental context were seen as both impeding and facilitating physical-activity support. According to 13 participants, the fact that the level of general support for people with intellectual disabilities is group oriented was an

impeding factor, and this was also true for the support of physical activities. A fixed daily program in which physical activities are included is a facilitating factor according to participants ($n=17$). The majority of the participants ($n=19$), however, indicate that there is often no time scheduled for physical activities or that time pressure is a common reason for canceling a physical activity. The following quote by one of the participants illustrates the influence of both group and schedule time, and thus the complexity of the context:

That is, say, for direct support professionals sort of the clincher: what can they offer and when in the daily program. Because it is also attuned to the rest of the group, so if one member of the group is scheduled for fifteen minutes in his mobility chair, then there will really be an activity offered and, yes, if that is not included in the daily program it makes things more difficult. (Direct support professional supporting people with profound intellectual disabilities in a living unit; work experiences in years = 11)

Furthermore, organizational support in terms of budget, information, or policy is referred to as facilitating the opportunity to provide physical-activity support ($n=18$). Half of the participants do not feel supported by their management or indicate that the importance of physical activity for intellectual disabilities is not yet in the organizational culture, a factor that thus impedes their support of physical activity. Aspects of the physical plan of the working location and the availability or not of physical-activity materials or resources are also indicated by participants as influencing the opportunity to support physical activity. Finally, participants ($n=16$) indicate that their support of physical activity depends on weather conditions or the time of year.

Motivation

Regarding the motivation of participants to engage in physical-activity support, a total of 11 influencing factors were isolated. The majority of the participants ($n=23$) indicated they were motivated by the outcomes they expected for the people they work with. These outcomes were primarily expected not only in the realm of physical health but also in mental health and other domains (e.g., general development, participation, or alertness). Half of the participants said that they supported physical activity, because they simply found it part of their work. On the other hand, the work pressure they experienced was described as an impeding factor by 17 participants. One participant describes the influence of work pressure as follows:

I see myself as a hard-working person, that's not the point, but we really have to do a lot and not just taking care of the group: all the paperwork, and then it's also sometimes nice when someone goes to bed half an hour earlier than normal; then you also have time to do your work on the PC. (Direct support professional supporting people with profound intellectual disabilities in a living unit; work experiences in years = 11)

Support is also dependent on the existing routine, habits, or priority given to it in the support domain by direct support professionals ($n=20$). Some participants point out that this support depends on the individual goals set for the people with whom they work:

It is embedded sometimes, but then just for one person. Not for the whole group, but only as a specific goal for one person, where we will be working on this for a few months. Then it becomes more and more so. (Direct support professional supporting people with profound intellectual disabilities in a living unit; work experiences in years = 35)

In addition, half of the participants indicate that physical-activity support is usually only mentioned when there is a problem with the people with whom they work (e.g., overweight, decline in condition or skills). Moreover, providing physical-activity

support is motivated by a direct support professional's affinity ($n=12$), success experiences ($n=5$), observed effects ($n=12$), emotional responses ($n=12$), and the extent to which it contributes to the relationship with the person being supported ($n=5$). One participant describes the positive influence of seeing progress, and the impact of whether or not the support becomes a success:

I think it is great fun to do; you sometimes see results, and I am always very happy with that, but sometimes it can also be frustrating when things don't work out, and you get stuck supporting the activity. (Direct support professional supporting people with profound intellectual disabilities in a living unit; work experiences in years = 3)

Characteristics of people with intellectual disabilities

Six factors were isolated relating to the characteristics of people with intellectual disabilities, which influence the capability, opportunity, or motivation to follow up on physical-activity support by direct support professionals (see Figure 2). The influencing characteristics described by the participants are intellectual disabilities ($n=10$), physical disabilities ($n=20$), physical health ($n=22$), mental health ($n=11$), age ($n=8$), and preferences or motivation of the people with whom they work ($n=15$). The factors in themselves can not only play a role but also affect – and interact with – the factors classified within the deductive sources (i.e., capability, motivation, and opportunity). One of the participants expresses her view about the motivation of people with intellectual disabilities themselves as follows:

Somewhere there is another part, especially in the intellectual disability people who are on a higher level; somehow, it is partly their own responsibility. If I have explained and I am convinced that they understand me well, then I think: Ok, well, it is up to you now. (Direct support professional supporting people with mild to moderate intellectual disabilities in a living unit; work experiences in years = 5)

Another participant explains how the physical disabilities of some of the group affect factors within the other sources:

So yes... we make the choice to go walk outside with the people who are able to walk by themselves, and also because that part is highly stimulating; this is included in both their individual care plan and their daily program. Often you don't make that choice when it comes to people who are wheelchair-bound, because there is no time available. (Direct support professional supporting people with severe to profound intellectual disabilities in a living unit; work experiences in years = 10)

Discussion

The purpose of this study was to investigate the facilitating and impeding influences on the behavior of direct support professionals in regard to their support of physical activity. Results show that the direct support professionals interviewed describe factors influencing all the theoretical sources of behavior. Most of the factors could be classified under the condition *Motivation*, while the fewest under *Capability*. Although experiences differed, the factors falling under *Capability* were more often mentioned as impeding by the direct support professionals interviewed, in contrast to the factors under *Motivation* and *Opportunity*, which were more often mentioned as facilitating. Another important finding concerns the emergence of an additional category that affects the behavior of the direct support professionals in the physical-activity support, one that represents the characteristics of the people with whom they work. The characteristics of people with intellectual disabilities are predominantly experienced as impeding. Interestingly, the characteristics of people with intellectual disabilities appear to

interact with factors that fall under *Capability*, *Motivation*, and *Opportunity*, and thus they proved to be an important complement for understanding the behavior of direct support professionals in this context (see Figure 2).

The results showed that four influential factors isolated in this study were fully theory-informed. Another 16 were partly motivated by Theoretical Domains Framework, but the analytical approach in this study made it possible for other indications (and/or refinements) about influences found to be a better fit in this study's data. This approach also allowed four other influences (i.e., education, practical support, affinity, and the need to solve a problem) to emerge from the direct support professionals' perspectives as being fully motivated by this study's data. For example, practical support from parents or volunteers is often referred to as facilitating or hindering physical-activity support. This influence, in our opinion, could not be attributed to social influences from the environmental context, because it did not immediately encourage or discourage physical-activity support by direct support professionals. However, it does identify an important aspect of the physical and social environment that affects both the level of physical activity in individual persons with intellectual disabilities and the extent to which direct support professionals generate the support themselves. Keeping in mind that behavior, in turn, can alter the theoretical sources (e.g., *Capability*); it is debatable whether it is desirable for direct support professionals to broadly depend on practical support for physical-activity support.

The main strength of this study is the use of a comprehensive and validated theoretical framework that proposes possible influences on behavior as a starting point, in combination with a clear linkage to a system that increases understanding of the actual performance of the behavior [8,11,13]. In doing so, an attempt was made to stay as close as possible to the data during the analysis. This provided a good reflection of the reality for direct support professionals, along with valuable information to explain the specific behavior this study was interested in learning about, vis-à-vis its population and context [15]. Another strength of this study is the involvement of an independent researcher to strengthen the claims of the coding scheme and thus the results presented [16,17].

However, there are also some potential study limitations. Clarity of awareness is needed when interpreting – and creating value – when it comes to the number of participants who indicate a certain factor [18]. In this study, numbers were reported that underline differences in perceptions and that identify patterns, which were not perceptible simply from the unquantified qualitative data. Readers should be aware that these numbers do not indicate causes, consequences, or relationships, nor can they justify any great generality for the conclusions [18]. For example, the transcript fragments of only a small number of participants were coded with the factor *Competence*. This code was only assigned when direct support professionals were explicitly described as able or not to implement physical activity in their daily routine, and thus this could only be assigned to transcript fragments, where awareness, knowledge, and skills were developed. This does not mean, however, that *Competence* is less important than the other factors classified under the condition *Capability*.

Another limitation might be related to the considerably broad scope and definitions used in this study. The most widely cited definition of physical activity was that defined by Caspersen et al. [19] as “any bodily movements produced by skeletal muscles that result in energy expenditure” [20]. In reference to the participants of this study, however, a segment of the people with whom direct support professionals worked had additional severe or profound motor

disabilities, and the performance of bodily movements using skeletal muscles independently was problematic for them. A rather broadly defined definition of physical activity was therefore needed. Strategies that facilitate change in body position, the movement of the whole body or parts of the body, such as rolling over, manipulating material, and moving legs, were all included [6]. Although explained to them, the ideas about the support of physical activity might also differ among the direct support professionals interviewed. Finally, the results were based on the perspectives of the direct support professionals interviewed, and the sampling method in this study might be subjective. Direct support professionals had to register for participation. There is a possibility that the direct support professionals interviewed are more open or more interested in the topic of this research compared to the target population [21]. A self-selection bias is, however, possible in all sampling methods since voluntary participation is central to the ethical research standards [22]. In addition, the final sample relied on the researcher's judgment when selecting participants with diverse characteristics. As expected, when trying to achieve maximum variation, overall themes began to repeat, and variety in characteristics and perspectives was reached after 20 interviews [23]. The remaining interview meetings – since already scheduled – were carried out anyway and were included in this study.

These potential limitations notwithstanding, there was great merit in beginning to explore the perceptions various direct support professionals had, since this perspective constitutes a fundamental gap in the existing literature [2]. Moreover, it has contributed to highlighting the existing interaction vis-à-vis specific characteristics of people with intellectual disabilities. Furthermore, the study results do suggest recommendations for practice, policy, and future research.

For practice and policy, the results indicate that a number of behaviors need to be targeted, including direct support professionals' knowledge and skills, as well as their ability to combine these and actually implement the support of physical activity in their daily routine. The opportunities afforded by the mix of various environmental constraints suggest additional intervention functions and policy categories at the organizational and environmental levels. In reference to the study results, the organizational environment needs to allow direct support professionals to structurally integrate physical activities in the daily program of each person with intellectual disabilities. Thus, strengthening organizational support and culture constitutes a key influence on what opportunities are afforded. Once this is addressed, intervention functions can then focus on eliciting positive feelings and stimulating the motivation of direct support professionals by addressing factors such as emphasizing successes, focusing on positive effects, and making physical-activity goals mandatory. Policymakers can also use the results to reveal the facilitating and impeding factors in their own practice, and to identify which change in intervention function and policy category could be used to target the factors that influence physical-activity support by direct support professionals, and so promote the support of physical activity in people with intellectual disabilities within their organizations [13,24].

Future research should go beyond a qualitative study and elaborate on the results, which may include the development of a self-reported direct support professional questionnaire designed to investigate and measure the influencing factors in a quantitative way. The richness of the qualitative research findings from this study could be used to inform development of such a questionnaire. In reference to this study's results, measuring differences between various direct support professionals in terms of the diversity of people with whom they work and the environmental

context can also be recommended. Furthermore, how should the characteristics of the direct support professionals, which are related to this, be analyzed, since the perspectives presented in this study were so wide ranging? Another suggestion for future research is to examine the effectiveness of intervention functions and policies that target these influential factors by closely monitoring their introduction.

Conclusion

Using a theory-informed exploratory approach, important insights were obtained in the support of physical activity by direct support professionals. In total, 30 influencing factors were identified. Moreover, an inductive category emerged that affects the behavior of direct support professionals in physical-activity support, which is representative of the characteristics of the people they work with. Although experiences differed, this study's results have set the stage for developing the essentials of a comprehensive approach to changing direct support professional behavior and thus promoting the support of physical activity in people with intellectual disabilities.

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