

University of Groningen

Lifestyle Opportunities

Overwijk, Annelies

DOI:
[10.33612/diss.206455014](https://doi.org/10.33612/diss.206455014)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2022

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):
Overwijk, A. (2022). *Lifestyle Opportunities: supporting a healthy lifestyle of people with moderate to profound intellectual disabilities*. [Thesis fully internal (DIV), University of Groningen]. University of Groningen. <https://doi.org/10.33612/diss.206455014>

Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

Chapter 2

Needs of direct support professionals to support people with intellectual disabilities in leading a healthy lifestyle

Abstract

Background: For a healthy lifestyle, people with moderate, severe, and profound intellectual disabilities living in residential facilities and/or participating in day activity centers are dependent on their Direct Support Professionals. However, it is unclear what knowledge and skills these Direct Support Professionals require to support these individuals in living a healthy lifestyle. Therefore, the aim of this study was to identify the needs of Direct Support Professionals for supporting these people with moderate to profound intellectual disabilities to achieve and maintain a healthy lifestyle.

Method: Direct Support Professionals (n=28) were interviewed with the use of a semi-structured protocol based on the Theoretical Domains Framework. The interviews were analyzed with a theory-driven content analysis.

Results: The most frequently mentioned needs referred to the following domains of the Theoretical Domains Framework: Environmental Context and Resources (n=27), Social/Professional Role and Identity (n=25), Social Influence (n=25), Skills (n=24), and Knowledge (n=23).

Conclusion: To support people with moderate to profound intellectual disabilities in leading a healthy lifestyle, Direct Support Professionals primarily needed support related to the domain environmental context and resources. Within this domain available time, dealing with different seasons, and a healthy lifestyle policy in the organization need attention. Development of interventions targeting these Direct Support Professionals needs is required.

Overwijk, A., Hilgenkamp, T.I.M., Van der Schans, C.P., Van der Putten, A.A.J., & Waning, A. Needs of Direct Support Professionals to Support People With Intellectual Disabilities in Leading a Healthy Lifestyle. *Journal of Policy and Practice in Intellectual Disabilities*. 2021; 18(4), 263-272. <http://doi.org/10.1111/jppi.12383>

Introduction

People with moderate to profound intellectual disabilities (ID) are a heterogeneous group with various health problems^{1,2}. They often do not engage in a healthy lifestyle with respect to physical activity and nutrition³⁻⁹. As many people with ID have higher obesity rates, are more at risk for malnutrition^{7,10}, and perform insufficient physical activity^{8,9,11}, it is particularly important for them to live a healthy lifestyle as it can prevent diseases related to obesity and physical inactivity^{10,12}.

Due to the disabilities of people with moderate to profound ID, they are highly dependent on others¹³⁻¹⁶ and need support from their Direct Support Professionals (DSPs) to achieve and maintain a healthy lifestyle¹⁵. DSPs are staff who work directly with people with ID in their daily activities in both residential facilities and day activity centers (i.e. the place where the individuals with ID live and work or do daily activities). Therefore, these DSPs have a major impact on health promotion¹⁷, and most of them consider supporting and including daily healthy lifestyle for people with ID as a component of their job¹⁸. However, they often do not know the public health recommendations for physical activity¹⁹ and what type to offer to these individuals²⁰. In addition, DSPs require skills, knowledge, and confidence in order to deliver health promotion^{17,21}. Insufficient knowledge and skills have previously been mentioned as factors impeding physical activity support^{22,23}. Knowledge and training in nutrition are also needed^{5,24,25}. Thus, DSPs require more knowledge and skills in order to facilitate a greater amount of physical activity^{26,27} and healthy nutrition for people with ID. However, it is currently unclear what type of knowledge and skills DSPs need in order to do so, and an in depth study to determine this information would be beneficial for designing effective interventions to support DSPs. Therefore, the aim of this study was to identify the needs of DSPs for supporting people with moderate to profound ID to achieve and maintain a healthy lifestyle.

Method

Design

A qualitative research design was used. DSPs were interviewed employing a semi-structured protocol based on the Theoretical Domains Framework (TDF)^{22,28} in order to obtain information about their support needs for assisting in physical activity and healthy nutrition for people with moderate to profound ID. The TDF is used in this study because it is a widely used evidence based theoretical approach for gaining knowledge into which domains require

attention to influence behavior^{22,28–30}. The foundation of the TDF are different psychological theories related to behavior change²⁸. A validation of the TDF by Cane et al.²² resulted in a 14-domain framework covering influences on behavior. This framework focuses particularly on the health domain and can identify intervention components that can assist in modifying the behavior of DSPs when supporting physical activity and healthy nutrition. A complementary theory supporting the TDF domains for changing behavior is the COM-B system²². This is a theoretical approach that explains the nature of behavior with three components (Capability, Opportunity, and Motivation) in order to change it. Every domain of the TDF is part of a COM-B component. While the TDF covers the influences on behavior, the COM-B system comprises the nature of behavior. The TDF domains (1) Knowledge, (2) Skills, (3) Memory, Attention, and Decision Processes, and (4) Behavioral Regulation fit within the Capability component. Opportunity consists of (1) Social Influences and (2) Environmental Context and Resources, and the domains (1) Social/Professional Role and Identity, (2) Beliefs about Capabilities, (3) Optimism, (4) Beliefs about Consequences, (5) Intentions, (6) Goals, (7) Reinforcement and (8) Emotion fit within the Motivation component. See table 1 for a representation of the inter-relation of the TDF and the COM-B system, and an explanation of each construct. The TDF and COM-B system have been used previously to gain insights in low levels of physical activity for people with ID, factors that influence DSPs to support physical activity, and the influence of characteristics of both people with ID and DSPs in the support of physical activity^{23,27,31}.

Table 1 | *The inter-relation of the Theoretical Domains Framework and the Behavior Change Wheel's COM-B system²²*

COM-B component		TDF Domain	Explanation of TDF construct ³⁰
Capability	Psychological	Knowledge	Awareness of the existence of something
		Skills	Ability or proficiency acquired through practice
		Memory, Attention and Decision processes	The ability to retain information, focus selectively on aspects of the environment, and choose between two or more alternatives
		Behavioral regulation	Anything aimed at managing or changing objectively observed or measured actions
	Physical	Skills	

Table 1 | *Continued*

COM-B component		TDF Domain	Explanation of TDF construct ³⁰
Opportunity	Social	Social Influences	Those interpersonal processes that can cause an individual to change their thoughts, feelings, or behaviors
	Physical	Environmental Context and Resources	Any circumstance of a person’s situation or environment that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behavior
Motivation	Reflective	Social/Professional Role and Identity	A coherent set of behaviors and displayed personal qualities of an individual in a social or work setting
		Beliefs about Capabilities	Acceptance of the truth, reality, or validity about an ability, talent, or facility that a person can put to constructive use
		Optimism	The confidence that things will happen for the best, or that desired goals will be attained
		Beliefs about Consequences	Acceptance of the truth, reality, or validity about outcomes of a behavior in a given situation
	Automatic	Intentions	A conscious decision to perform a behavior or a resolve to act in a certain way
		Goals	Mental representation of outcomes or end states that an individual wants to achieve
		Social/Professional Role and Identity	
		Optimism	
		Reinforcement	Increasing the probability of a response by arranging a dependent relationship, or contingency, between the response and a given stimulus
		Emotion	A complex reaction pattern, involving experiential, behavioral, and physiological elements, by which the individual attempts to deal with a personally significant matter or event

Participants

Participants were recruited from seven care providers across the Netherlands working together in a consortium. Respondents were approached by an assigned and trained contact person from each organization who asked four respondents to participate in compliance with the inclusion criteria in order to provide a heterogeneous sample. The inclusion criteria for DSPs were as follows:

- Supporting adults with moderate ID and/or people with severe/profound ID in residential facilities and day activity centers, or a combination;
- Minimum work experience of six months at the current workplace;
- Minimum education level of senior secondary vocational education.

A total of 28 DSPs participated, all from non-profit, non-governmental organizations. The distribution of DSPs across the seven care providers was not equal: four DSPs were interviewed from each of the seven care providers, except for one care provider with seven DSPs interviewed, and one care provider with only one DSP interviewed. In total, 27 interviews were held with 28 DSPs as one interview was held simultaneously with two DSPs due to private circumstances within the team of DSPs. DSPs were employed at residential facilities (n=19) or at day activities centers (n=6). One was working a night shift (n=1). Two DSPs were working in settings where living and day activities overlapped. All of the participating DSPs supported people with moderate to profound ID, although some of them also supported people with mild ID. Table 2 presents the characteristics of the interviewed DSPs who supported 506 people with ID (male: 51.6%, female: 48.4%) from the age of 18 years. DSPs indicated the following additional disabilities for the people with ID who they support: health, motor, psychiatric, behavioral, visual, and auditory problems.

Table 2 | *Characteristics of Direct Support Professionals (n=28)*

	n	%	Mean	SD	Range
Age in years			45	12	42
Gender					
Male	5	18			
Female	23	82			
Education					
Senior secondary vocational education: Educational theory	13	46			
Senior secondary vocational education: Nursing	7	25			
University of applied sciences: Educational theory	4	14			
Other:					
Senior secondary vocational education: Carer Individual health care	1	4			
Senior secondary vocational education: Sports	1	4			
University of applied sciences: Marketing	1	4			
University of applied sciences: Nutrition and dietetics	1	4			
University: Psychology	1	4			
Work setting					
Residential facility	19	68			
Day activity centre	6	21			
Combination group	2	7			
Night shifts	1	4			
Years of experience with people with ID			20	12	40

Interview protocol

DSPs were interviewed using a semi-structured protocol based on the TDF^{22,28}. The domains of the TDF were supplemented with the ‘Competences’ described by the VGN (‘Vereniging Gehandicaptenzorg Nederland’, Dutch Association of ID care provider services)^{32–35}. The VGN competences were utilized to specify or supplement five domains of the TDF. For example, the competences in the domain Skills of the TDF were specified based on the VGN competences with: ability to motivate/stimulate, connection to people with ID’s needs, and communication with people with ID/environment. In the domain of Social/Professional Role and Identity, the reflection on personal actions and increasing an individual’s expertise was added from the VGN competences.

Following the composition of the interview protocol after consultation with the other authors, a pilot with three interviews was held to determine its applicability. As a result of the pilot, minor changes were made in which three questions were added related to the characteristics of people with ID, degree of physical activity, and the influence of the seasons on healthy lifestyle activities. In addition, the term heterogeneity was explained and, if DSPs

indicated no support needs, they were asked to explain. The semi-structured interview began with initial questions regarding the attitude towards physical activity and nutrition and how these were supported (See Appendix A for the interview protocol). The following open question was then asked: 'Do you need certain things to support people with ID in physical activity and nutrition?' DSPs were encouraged to think broadly about their support needs. The 14 domains of the TDF were presented for additional support needs. DSPs were asked if there was anything on the list that they would need to support physical activities and healthy nutrition. During the interviews, additional questions based on the answers of DSPs were asked to gain in depth information about their support needs.

Procedure data collection

Face-to-face interviews were held by the first author and four bachelor students of the Hanze University of Applied Sciences (School of Social Studies) from October 2017 until May 2018. These Bachelor Social Work students did internships and were trained and experienced in interviewing as part of their Bachelor program. In addition, the students were provided with specific interview training. First, they performed a test interview with someone from their network. The students received feedback from the first author on their interviewing skills (such as asking more questions and following the protocol). Second, the students conducted their first interview. Again, they received feedback on the same points as in step one from the first author. All of the recorded interviews were checked by the first author, and two respondents were contacted by telephone after the interview for additional information.

Interviews occurred on-site at the care providers or, if desired, at the Hanze University of Applied Sciences. The interview duration averaged 55,97 minutes. The characteristics of the DSPs were requested prior to the interview. Whereas this research focuses on DSPs, only estimated characteristics of the people with ID were requested.

Analysis

The recorded interviews were transcribed and anonymized by the four trained students. All of the transcripts were checked by the first author and adjusted when necessary; the first author listened to random parts of the audio to determine whether the transcriptions were correct. If the transcripts were not fully corresponding to the audio record, adjustments were made to make the transcripts correct and complete.

A theory-driven content analysis was carried out using Atlas.ti 8 software³⁶. A codebook was developed based on the 14 TDF domains²², and it was checked by two researchers (TH, AW). Two researchers (AO, AW) coded two interviews according to the codebook in order to

assess the applicability. In response to the first coding session, the sub code 'family and friends' was only mentioned under the code 'Social Influence' and was removed from 'Environmental context and resources' to prevent misunderstanding. Finally, 'norms from colleagues' was removed from 'Social Influence' to prevent misconception with the construct 'norms and values from colleagues and their influence' within the domain 'Social/Professional Role and Identity'. Additional remarks about the codes to be allocated were included in the margin of the codebook. It was agreed that the analysis should closely accord with the responses of the DSPs. Two researchers (AO, AW) coded all of the interviews. The results were compared, and differences were discussed until 100% consensus was obtained. Frequencies were calculated in order to identify the most frequently mentioned support needs according to the DSPs.

Ethics

This study was conducted according to the principles of the Declaration of Helsinki and has been independently reviewed, and dispensation was received by the Medical Ethical Committee of the University Medical Centre Groningen (study number: 201700164). All of the respondents were informed about the study and provided written consent to participate. Participation of all respondents was voluntary and of no consequence to their work evaluations or rewards. DSPs had the option to withdraw from participation without any consequences. DSPs were aware that the collected data were processed anonymously and cannot be linked back to the person or organization.

Results

All DSPs had a positive attitude towards healthy nutrition and physical activity. For example they stated: *'I think healthy nutrition is very important, I also eat healthy myself'* (3.20), and, *'because if you just exercise a lot, you will feel better and you will be healthier'* (8.15), and finally, *'well, I think that's important for everyone. So for yourself, but also for people who depend on us, that is certainly important. And they are in a wheelchair, so they already have less physical activity than we do'* (15.20). To encourage a healthy lifestyle DSPs already performed several activities, for example choose sandwich spreads with healthy and unhealthy colors (green and red), getting fresh vegetables from the market every day, stimulate walking or biking to the day activity centre, the presence of physical activity programs, and letting people with ID help with daily activities.

The following five domains emerged from the theory-driven content analysis as most frequently mentioned by DSPs when asked about their support needs: Environmental Context and Resources (n=27), Social/Professional Role and Identity (n=25), Social Influences (n=25), Skills (n=24), and Knowledge (n=23). In order of frequency, the other domains of the TDF were as follows: Intentions (n=16), Behavioral Regulation (n=12), Reinforcement (n=10), Memory, Attention, and Decision Processes (n=10), Optimism (n=9), Goals (n=8), Emotion (n=8), Beliefs about Consequences (n=7), and Beliefs about Capabilities (n=5).

The domain Environmental Context and Resources emerged most often as a support need that facilitates a healthy lifestyle. Dealing with seasons and a healthy lifestyle were most important as DSPs need support to deal with the different weather conditions and seasons; for example, how to be physically active when it rains or how to eat healthily in summer. One respondent explained: *'...What I, for example, noticed last summer: if it was hot then people had..., then you do not feel like cooking, so then there was sometimes some fries. But, yes, well, is that the end of the world?...' (7.87)*. Another respondent explained: *'When it rains, most of them don't feel the need to go outside' (2.38)*. Dedicating time to support a healthy lifestyle within the available time is also challenging. As illustrated by a DSP: *'...outside the day activities you are mainly concerned with caring and the laundry and the ... that kind of things...' (24.62)*. Moreover, there is a need for attention to be paid on an organizational level to lifestyle. A healthy lifestyle policy within the organization for everyone to follow is necessary; according to DSPs: *'...that there are simply guidelines that we all keep going in the same way...' (14.43)*. And: *'For our organization it is now important, but just not important enough to say; well, you know, if we really want our clients to participate, we just have to facilitate it' (7.41)*.

The domain Social/Professional Role and Identity was indicated by almost all of the DSPs as facilitating a healthy lifestyle. Dealing with norms and values of colleagues and their influence on the provided support was a support need. For example, colleagues may have different opinions about what constitutes healthy food. A DSP explained: *'...what I myself sometimes run into is that there is just ... That colleagues sometimes look differently at what is allowed, what healthy food is...' (7.19)*. Another DSP described: *'...That depends on the DSP so to say. What is being done for physical activity... One DSP thinks it is more important than another ...' (12.26)*. Additionally, the autonomy of the people with ID is a topic with which DSPs struggle within this domain. DSPs experience a dilemma regarding to what extent making an unhealthy choice is the responsibility of people with ID themselves or the

responsibility of their DSP. As one DSP explained: *'...Here, in our atmosphere, it is a choice of clients ... I think that is a very difficult discussion. How far do we go exactly?'* (5.21).

Within the domain of Social Influence, the support from family/ parents and others plays an important role in a healthy lifestyle for people with ID. A social health-promoting environment for these individuals will likely support them towards achieving and maintaining a healthy lifestyle. The following quotes illustrate this: *'...Yes, it's just that I think it's very important that we have the family and the people around the people with ID also in the plan of what we want: that they live healthier and eat healthier...'* (26.83), and *'... Families... could also play a role... that you link, uh... a brother or sister who exercises with a sibling who lives here...'* (20.29). People with ID can also benefit from the social support of DSPs themselves and the cooperation and coordination between colleagues for a healthy environment. As one DSP explained: *'...nutrition and physical activity that really does pay off, but then you have to be very consistent and everyone has to do that. And, yes, you work here with 14 DSPs, so how do you get that transferred well to everyone and then: does it happen? And yes, that is just difficult...'* (7.74). Consecutively, a transfer in expertise of physical activities can support DSPs in the execution of activities in daily situations, both from health professionals to DSPs as between DSPs.

In the Skills domain, competences (e.g., communication with people with ID to motivate/stimulate) were a support need for DSPs. There is a need for skills to communicate with people with ID, to connect to their individual needs, and there is a difficulty of motivating and stimulating them. The heterogeneity of this population and the individual support they need is a challenge for DSPs. One of them indicated: *'...because they need so much proximity and are all so individually very complex... And also being so different is sometimes difficult to undertake activities...'* (12.9). DSPs explained the following regarding the difficulties in motivating: *'...also in the... the daily care and such things. There you might also need some tools, to still look how you can motivate people more, to do things themselves...'* (24.64), and *'...but it is also something like... to keep that motivation...'* (25.14).

Finally, there is a lack of Knowledge about healthy nutrition and physical activity for people with ID. It is difficult for DSPs to locate the correct information about healthy food, in general, but they also need knowledge that is specific for the disabilities of people with ID (e.g., healthy food for chewing and swallowing problems as well as low energy problems). This is illustrated by the following quote: *'...it is also quite difficult to get good information about what is healthy and also; what is healthy food for our elderly? And what is healthy food for our elderly with an intellectual disability...'* (7.22). Although, for some residential

facilities the evening meals are centrally prepared, knowledge about healthy nutrition can help DSPs to influence the other food intake over the day. Another DSPs expressed the knowledge for physical activity by the following quote: *'...I also think a little about the knowledge of people who are just not that mobile, how you can do that...what physical activity you can do with them'* (24.51). Knowledge is fundamental in order for DSPs to provide the support that these individuals need for a healthy lifestyle.

Discussion

Principal findings

The aim of this study was to identify the needs of DSPs for supporting people with moderate to profound ID to achieve and maintain a healthy lifestyle. DSPs most frequently indicated needs for support in the following five domains: (1) Environmental Context and Resources, (2) Social/Professional Role and Identity, (3) Social influences, (4) Skills, and (5) Knowledge. Within these five domains, the following support needs were relayed: (1) dealing with weather conditions and available time, (2) dealing with norms and values of colleagues and the autonomy of people with ID, (3) support from family, parents, and colleagues, (4) competences such as motivating and stimulating people with ID, and (5) knowledge about healthy nutrition and physical activity that is specific for people with ID.

The authors' findings regarding the importance of environmental and social support for people with moderate to profound ID to achieve a healthy lifestyle concur with the results of Kuijken et al.³⁷ and the results of Bossink, Van der Putten, and Vlaskamp³¹. These studies confirm the importance of social support and the physical environment related to the dependency on others of people with ID³⁷. In addition, support on an organizational level, influence of seasons/weather, and social influences were mentioned in earlier studies²³. In the present study, weather conditions and time were mentioned as the most important support needs, although they consisted of slightly different environmental factors compared to the study of Kuijken et al.³⁷ in which health education, facilities, and location of residence or work were indicated. In addition, the present study focused explicitly on the support needs of DSPs, however, the purpose of the study of Bossink, Van der Putten, and Vlaskamp³¹ was to determine the barriers and facilitators for supporting physical activity.

An important additional finding of this study is that professionals face potential conflict between their personal norms and values and those of their colleagues, which was not mentioned in other studies. This conflict highlights the need for support at the policy and

organizational levels to implement physical activity in the daily routine and, with that, advocate for healthy lifestyle behavior. This is in accordance with previous research that suggests that DSPs require clear lifestyle guidelines in order to support a healthy lifestyle^{17,26,38,39}. This lifestyle guidelines should consist of an elaborated mission and vision where DSPs can conform to (e.g. a lifestyle plan for people with ID)^{17,38}.

This study demonstrates the lack of Knowledge about healthy nutrition and physical activity for people with moderate to profound ID. The support need in the Knowledge domain was also reported by Hamzaid et al.²⁵ who described that limited nutrition knowledge for caregivers influences healthy nutrition. Training in nutrition for professionals was also recommended by Humphries et al.⁵. The Knowledge and Skills domain was also indicated by Bossink, Van der Putten, and Vlaskamp³¹ as being needed in order to support physical activity. Furthermore, Doherty et al.²⁴ identified carers' and support workers' unmet training needs of correctly cooking and eating as well as supporting exercise activities (for weight management) for people with ID. However, these studies do not provide an in depth analysis of support needs for behavior change besides the Knowledge domain²⁵ or about both nutrition and physical activity³¹. Moreover, the study of Doherty et al.²⁴ is not from the perspective of DSPs themselves but from the perspective of people with ID regarding experienced barriers and facilitators.

For this study, DSPs indicated support needs on improving Capability (the TDF domains Knowledge and Skills), Opportunity (the TDF domains Social Influences and Environmental Context and Resources), and Motivation (the TDF domain Social/Professional Role and Identity). Thus, the support needs of the DSPs from this study encompass all three parts (Capability, Opportunity and Motivation) of the COM-B system²². The COM-B system is designed to analyze behavior for intervention design and consists of Capability, Opportunity, and Motivation. This system helps to visualize which domains are essential in changing behavior and, therefore, are essential for intervention development²². In this theoretical approach, Capability is presented as the person's psychological and physical capacity to perform an activity for which Knowledge and Skills are required. Motivation is the process that energizes and directs a person's behavior. Opportunity is described as external factors outside the individual that influence the performed behavior⁴⁰.

Strengths and limitations

A strong aspect of this study is the variety of respondents who were recruited from seven different care providers in the Netherlands. However, the distribution of DSPs interviewed

across care providers was not equal, this may have led to bias of certain types of organizations. Although, the impact of this distribution is limited as saturation was reached during the data collection. The DSPs in this study had different educational backgrounds, diverse work settings, a wide range of years of experience with people with ID, and they support a diverse group. With this sample, the authors were able to form a well-rounded picture of the support needs that are required for DSPs to support a healthy lifestyle. Another strength of this study is the use of the TDF^{22,28} as a theoretical framework. It guided both the data collection and the analysis for gaining an in-depth perspective of behavior change. This study presents comprehensive in-depth knowledge from the perspective of the DSPs on their specific needs for supporting people with moderate to profound ID towards achieving a healthy lifestyle. In contrast, other studies mainly focus on either physical activity or nutrition^{5,23,25} whereas this study focused on both of these themes to support a healthy lifestyle. Therefore, this study presents information that is relevant for intervention development and aims for DSPs to increase their support of physical activity and healthy nutrition.

Whereas the TDF is a strength in this study, it could also be a limitation. Although the authors have analyzed the data with an open mind, and all the quotations fitted into domains of the TDF, this more deductive analyzing method may have narrowed the view on the results. Though, it should be noted that DSPs had the space for additional information based on practical knowledge during the interviews. Another limitation of the study might be a longer timeframe of recruiting and collecting data, however this was inevitable as we were dependent of the support of care providers that sometimes had different priorities. There could be a bias in the sample due to the voluntary participation of the respondents as DSPs who are interested in the topic were possibly more motivated to participate. The positive attitude of the participants towards a healthy lifestyle is notable, and this positive attitude may have distorted the results of the support needs and also the representativeness. Nevertheless, DSPs with a positive attitude did have multiple support needs. Those with a less positive attitude can also benefit from interventions that target these support needs. Another limitation in the sample was that some DSPs also supported people with mild ID and, for them, it was sometimes difficult to formulate an answer for the interview questions that were focused on individuals with moderate to profound ID.

Implications for practice, policy and future research

From this study, five domains for support needs of DSPs emerged. For daily practice it is important to be aware of these support needs. The expectations of DSPs to support a healthy lifestyle of people with ID without prior knowledge and skills is too optimistic. Specialists, like physiotherapists and dieticians, should be aware of the knowledge and skills gap DSPs experience in their support. These specialists can work together interdisciplinary with DSPs to support them with their knowledge. Moreover, managers should facilitate support for DSPs to perform their tasks for a healthy lifestyle, for example by additional education and training.

Development of theoretical based interventions to support DSPs are needed^{21,38}. To meet the support needs of DSPs, additional training in physical activity support influences the behavior of them, particularly their Capability and Motivation³¹. On the other hand, interventions for healthy nutrition are particularly insufficient³⁸. However, research on healthy nutrition for the complexities of people with ID (e.g., with additional disabilities like chewing problems and energy problems) is minimal, although nutrition and physical activity are both important for a healthy lifestyle^{3,7}. Also, DSPs require knowledge about healthy nutrition that is specific for people with ID thus research in this field is required. Future interventions should be tailored to the needs of DSPs while considering their important role in the support of people with ID¹⁷. In turn, these individuals can benefit from such health promoting interventions focused on physical activity and healthy nutrition and, accordingly, health inequalities in the lifestyles of these individuals may decrease compared to their non-disabled peers^{41,42}.

In this study we indicated the need of DSPs for skills to motivate and stimulate people with moderate to profound ID towards achieving a healthy lifestyle. Behavior Change Techniques (BCTs) can facilitate improving lifestyles in the general population^{28,43,44} and can also be suitable for adults with mild ID to do so⁴⁵. Whether BCTs can be used to facilitate engaging in a healthy lifestyle for those with moderate to profound ID is still unclear. Research is required in order to gain understanding about the usability and effectiveness of BCTs in this population, to meet the needs of DSPs for motivation skills. Knowledge about effective components for intervention can improve the effectiveness of lifestyle interventions.

Conclusion

The needs of DSPs to support people with moderate to profound ID for engaging in physical activity and healthy nutrition were identified using the TDF as a theoretical approach. They frequently mentioned five domains. Support in the Environmental Context and Resources was indicated by all of them. Within this domain available time, dealing with different seasons, and a healthy lifestyle policy in the organization need attention. Interventions that are tailored to the needs of DSPs need to be developed in order to better equip them in supporting persons with moderate to profound ID to be involved in physical activity and healthy nutrition because of DSPs' meaningful role in the support of this population.

References

1. Van Timmeren EA, Van der Schans CP, Van der Putten AAJ, et al. Physical health issues in adults with severe or profound intellectual and motor disabilities: a systematic review of cross-sectional studies. *Journal of Intellectual Disability Research*. 2017;61(1):30-49. doi:10.1111/jir.12296
2. De Winter CF, Bastiaanse LP, Hilgenkamp TIM, Evenhuis HM, Echteld MA. Cardiovascular risk factors (diabetes, hypertension, hypercholesterolemia and metabolic syndrome) in older people with intellectual disability: Results of the HA-ID study. *Research in Developmental Disabilities*. 2012;33(6):1722-1731. doi:10.1016/j.ridd.2012.04.010
3. Robertson J, Emerson E, Gregory N, et al. Lifestyle related risk factors for poor health in residential settings for people with intellectual disabilities. *Research in Developmental Disabilities*. 2000;21(6):469-486. doi:10.1016/S0891-4222(00)00053-6
4. Melville CA, Hamilton S, Hankey CR, Miller S, Boyle S. The prevalence and determinants of obesity in adults with intellectual disabilities. *Obesity Reviews*. 2007;8(3):223-230. doi:10.1111/j.1467-789X.2006.00296.x
5. Humphries K, Traci MA, Seekins T. Nutrition and adults with intellectual or developmental disabilities: Systematic literature review results. *Intellectual and Developmental Disabilities*. 2009;47(3):163-185. doi:10.1352/1934-9556-47.3.163
6. Hilgenkamp TIM, Reis D, Van Wijck R, Evenhuis HM. Physical activity levels in older adults with intellectual disabilities are extremely low. *Research in Developmental Disabilities*. 2012;33(2):477-483. doi:10.1016/j.ridd.2011.10.011
7. Hsieh K, Rimmer JH, Heller T. Obesity and associated factors in adults with intellectual disability. *Journal of Intellectual Disability Research*. 2014;58(9):851-863. doi:10.1111/jir.12100
8. Van der Putten AAJ, Bossink LWM, Frans N, Houwen S, Vlaskamp C. Motor activation in people with profound intellectual and multiple disabilities in daily practice. *Journal of Intellectual & Developmental Disability*. 2016;42(1):1-11. doi:10.3109/13668250.2016.1181259
9. Gawlik K, Zwierzchowska A, Celebańska D. Impact of physical activity on obesity and lipid profile of adults with intellectual disability. *Journal of Applied Research in Intellectual Disabilities*. 2018;31(2):308-311. doi:10.1111/jar.12406
10. Koritsas S, Iacono T. Weight, nutrition, food choice, and physical activity in adults with intellectual disability. *Journal of Intellectual Disability Research*. 2016;60(4):355-364. doi:10.1111/jir.12254
11. Dairo YM, Collett J, Dawes H, Oskrochi GR. Physical activity levels in adults with intellectual disabilities: A systematic review. *Preventive Medicine Reports*. 2016;4:209-219. doi:10.1016/j.pmedr.2016.06.008

12. Warburton DER, Nicol CW, Bredin SD. Health benefits of physical activity: the evidence. *Canadian Medical Association journal*. 2006;174(6):801-809. doi:10.1503/cmaj.051351
13. Nakken H, Vlaskamp C. A Need for a Taxonomy for Profound Intellectual and Multiple Disabilities. *Journal of Policy and Practice in Intellectual Disabilities*. 2007;4(2):83-87. doi:10.1111/j.1741-1130.2007.00104.x
14. Pratt HD, Greydanus DE. Intellectual Disability (Mental Retardation) in Children and Adolescents. *Primary Care - Clinics in Office Practice*. 2007;34(2):375-386. doi:10.1016/j.pop.2007.04.010
15. Buntinx WHE, Schalock RL. Models of Disability, Quality of Life, and Individualized Supports: Implications for Professional Practice in Intellectual Disability. *Journal of Policy and Practice in Intellectual Disabilities*. 2010;7(4):283-294. doi: 10.1111/j.1741-1130.2010.00278.x
16. Leser KA, Pirie PL, Ferketich AK, Havercamp SM, Wewers ME. The perceived role of direct support professionals in the health promotion efforts of adults with developmental disabilities receiving support services. *Intellectual and Developmental Disabilities*. 2018;56(1):40-55. doi:10.1352/1934-9556-56.1.40
17. Kuijken NMJ, Vlot-van Anrooij K, Van Schrojenstein Lantman-de Valk HMJ, Leusink G, Naaldenberg J, Nijhuis-van der Sanden MW. Stakeholder expectations, roles and responsibilities in Dutch health promotion for people with intellectual disabilities. *Health Promotion International*. 2019;34(5):59-70. doi:10.1093/heapro/day059
18. Steenbergen HA, Van Wijck R, De Jong J, Van der Schans CP, Krijnen WP, Waninge A. Exploring the Attitude of Direct Support Persons towards promoting Healthy Physical Activity of Persons with Intellectual Disabilities: using the ADSP-HEPA Questionnaire. *Submitted*.
19. Melville CA, Hamilton S, Miller S, et al. Carer knowledge and perceptions of healthy lifestyles for adults with intellectual disabilities. *Journal of Applied Research in Intellectual Disabilities*. 2009;22:298-306. doi:10.1111/j.1468-3148.2008.00462.x
20. Steenbergen HA. *Healthy Lifestyle of People with Intellectual Disabilities*. University of Groningen; 2020. doi:10.33612/diss.132702260
21. Temple VA, Walkley JW. Perspectives of constraining and enabling factors for health-promoting physical activity by adults with intellectual disability. *Journal of Intellectual and Developmental Disability*. 2007;32(1):28-38. doi:10.1080/13668250701194034
22. Cane J, O'Connor D, Michie S. Validation of the theoretical domains framework for use in behaviour change and implementation research. *Implementation Science*. 2012;7(1):1-17. doi:10.1186/1748-5908-7-37
23. Bossink LWM, Van der Putten AAJ, Vlaskamp C. Physical-activity support for people with intellectual disabilities: a theory-informed qualitative study exploring the direct support professionals' perspective. *Disability and Rehabilitation*. 2020;42(25):3614-3620. doi:10.1080/09638288.2019.1602851

24. Doherty A, Jones S, Chauhan U, Gibson J. Eating well, living well and weight management: A co-produced semi-qualitative study of barriers and facilitators experienced by adults with intellectual disabilities. *Journal of Intellectual Disabilities*. Published online 2018. doi:10.1177/1744629518773938
25. Hamzaid NH, Flood VM, Prvan T, O'Connor HT. General nutrition knowledge among carers at group homes for people with intellectual disability. *Journal of Intellectual Disability Research*. 2018;62(5):422-430. doi:10.1111/jir.12480
26. Bodde AE, Seo DC. A review of social and environmental barriers to physical activity for adults with intellectual disabilities. *Disability and Health Journal*. 2009;2(2):57-66. doi:10.1016/j.dhjo.2008.11.004
27. Bossink LWM, Van der Putten AAJ, Vlaskamp C. Understanding low levels of physical activity in people with intellectual disabilities: A systematic review to identify barriers and facilitators. *Research in Developmental Disabilities*. 2017;68:95-110. doi:10.1016/j.ridd.2017.06.008
28. Michie S, Johnston M, Abraham C, Lawton R, Parker D, Walker A. Making psychological theory useful for implementing evidence based practice: A consensus approach. *Quality and Safety in Health Care*. 2005;14(1):26-33. doi:10.1136/qshc.2004.011155
29. Atkins L, Francis J, Islam R, et al. A guide to using the Theoretical Domains Framework of behaviour change to investigate implementation problems. *Implementation Science*. 2017;12:1-18. doi:10.1186/s13012-017-0605-9
30. Phillips CJ, Marshal AP, Chaves NJ, et al. Experiences of using the Theoretical Domains framework across diverse clinical environments: A qualitative study. *Journal of Multidisciplinary Healthcare*. 2015;8:139-146. doi:10.2147/JMDH.S78458
31. Bossink LWM, Van der Putten AAJ, Paap MCS, Vlaskamp C. Factors associated with direct support professionals' behaviour in the physical activity support provided to people with intellectual disabilities. *Journal of Intellectual Disability Research*. 2019;63(8):981-991. doi:10.1111/jir.12616
32. Vereniging Gehandicaptenzorg Nederland. *Landelijk Competentieprofiel Voor Beroepskrachten (Niveau ABC) in Het Primaire Proces van de Gehandicaptenzorg*.; 2015.
33. Vereniging Gehandicaptenzorg Nederland. *Beroepscompetentieprofiel Voor Beroepskrachten Met Een Hogere Functie (Niveau D) in Het Primaire Proces van de Gehandicaptenzorg*.; 2015.
34. Vereniging Gehandicaptenzorg Nederland. *Competentieprofiel EMB. Competentieprofiel Voor Beroepskrachten in de Gehandicaptenzorg Die Ondersteuning Bieden Aan Mensen Met Ernstige Meervoudige Beperkingen*.; 2013.
35. Vereniging Gehandicaptenzorg Nederland. *Competentieprofiel EVB+. Competentieprofiel Voor Beroepskrachten in de Gehandicaptenzorg Die Ondersteuning Bieden Aan Mensen Met Een Matige of (Zeer) Ernstige Verstandelijke Beperking En Moeilijk Verstaanbaar Gedrag*.; 2014.

36. Duncan EM, Francis JJ, Johnston M, et al. Learning curves, taking instructions, and patient safety: using a theoretical domains framework in an interview study to investigate prescribing errors among trainee doctors. *Implementation Science*. 2012;86(7):1-13.
37. Kuijken NMJ, Naaldenberg J, Nijhuis-van der Sanden MW, Van Schrojenstein-Lantman de Valk HMJ. Healthy living according to adults with intellectual disabilities: Towards tailoring health promotion initiatives. *Journal of Intellectual Disability Research*. 2016;60(3):228-241. doi:10.1111/jir.12243
38. Steenbergen HA, Van der Schans CP, Van Wijck R, De Jong J, Waninge A. Lifestyle Approaches for People With Intellectual Disabilities: A Systematic Multiple Case Analysis. *Journal of the American Medical Directors Association*. 2017;18(11):980-987.e3. doi:10.1016/j.jamda.2017.06.009
39. O'Leary L, Taggart L, Cousins W. Healthy lifestyle behaviours for people with intellectual disabilities: An exploration of organizational barriers and enablers. *Journal of Applied Research in Intellectual Disabilities*. 2018;31(1):122-135. doi:10.1111/jar.12396
40. Michie S, Van Stralen MM, West R. The behaviour change wheel: A new method for characterising and designing behaviour change interventions. *Implementation Science*. 2011;6(42):1-11. doi:10.1186/1748-5908-6-42
41. Emerson E, Baines S. Health inequalities and people with learning disabilities in the UK. *Tizard Learning Disability Review*. 2011;16(1):42-48. doi:10.5042/tldr.2011.0008
42. World Health Organization. *World Report on Disability*.; 2011. doi:10.1136/ip.2007.018143
43. Bird EL, Baker G, Mutrie N, Ogilvie D, Sahlqvist S, Powell J. Behavior change techniques used to promote walking and cycling: A systematic review. *Health Psychology*. 2013;32(8):829-838. doi:10.1037/a0032078
44. Greaves CJ, Sheppard KE, Abraham C, et al. Systematic review of reviews of intervention components associated with increased effectiveness in dietary and physical activity interventions. *BMC Public Health*. 2011;11:119. doi:10.1186/1471-2458-11-119
45. Willems M, Waninge A, De Jong J, Hilgenkamp TIM, Van der Schans CP. Exploration of suitable behaviour change techniques for lifestyle change in individuals with mild intellectual disabilities: A Delphi study. *Journal of Applied Research in Intellectual Disabilities*. 2019;32(3):543-557. doi:10.1111/jar.12548

Appendix A: Interview protocol

First part

Background information people with moderate to profound ID

1. Do you work mainly with an equal (homogeneous) or different (heterogeneous) group?
2. Does the group have a fixed composition/ or is it a changing group of people with ID?
3. What is typical for the group of people with ID you work with in five key words?
 - Degree of intellectual disability: moderate/severe/profound ID
 - Additional disabilities
(Motor/visual/auditory/health problems/psychiatric/behavior problems)
 - Degree of motor impairment: Wheelchair user?

Second part

Support needs

1. What is your attitude towards healthy food?
 - 1.1 What is your attitude towards physical activities?
 - 1.2 What is a little physical activity for people with ID, and what is a lot of physical activity?
2. How is the support for nutrition?
 - 2.1 How is the support for physical activities?
 - 2.2 What is currently going well with regard to nutrition and physical activity?
 - 2.3 What are the areas for improvement regarding nutrition and physical activity?
 - 2.4 Is there a difference regarding nutrition and physical activity depending on the seasons?

3. Do you need certain things to support people with ID in physical activity and nutrition?

What do you need?

Possible additional questions:

- Are there other things which are important?
- How do you personally impact the support provided?
(Knowledge/ skills/ own norms-values/ beliefs about capabilities/ optimism/ beliefs about consequences/ reinforcement/ intentions/ goals/ memory, attentions and decision processes/ emotions/ behavioral regulation)
- Are there things in the environment which impact the support provided?
(Social influences, environmental context and resources)
- Are there characteristics from people with ID that impact the support provided?
- When time is an important factor:

'If you do have time, what do you need to encourage people with ID to do physical activities and eat healthy?'

- If there is no support need:

Why is there no need for support?

4. Are there things on this list that we have not discussed yet, but that are important in the support of nutrition and physical activity?

<i>Domain</i>	<i>Example</i>
Knowledge	Nutrition guidelines, physical activity guidelines for people with ID, physical activities.
Skills	Practical skills (for example: carrying out activities), competences (connection to people with ID's needs, communication with people with ID/environment, being able to motivate/stimulate), see opportunities in people with ID.
Social/ Professional Role and Identity	Professional boundaries (what do you can/cannot), commitment with organization, own norms/values vs. professional norms/values and the influence on the support, norms/values of colleagues and the influence, reflection on personal actions and raise expertise.
Beliefs about Capabilities	Self-confidence, confidence in own support for people with ID, idea that you can influence lifestyle.
Optimism	Optimistic (hopeful/positive)/pessimistic (gloomy) from one's own person, trusting that desired goals are achieved.
Beliefs about Consequences	Expected outcomes and consequences of this on lifestyle.
Reinforcement	Rewards (structural/non-structural, proximal/distal), stimulation, consequences with regard to behavior, tenacity.
Intentions	Conscious intentions and stability.
Goals	Setting small or big goals and prioritize (the main goal first), autonomy (independence) of people with ID, implementation of goals (also in the long term).
Memory, Attention and Decision Processes	Memorize knowledge and apply it in your own situation, choose between alternatives (solutions), cognitive overload/tiredness (taking knowledge and processing is difficult due to overload/tiredness).
Environmental Context and Resources	Influence environment (friends/family), material resources, impeding/stimulating factors, and influence from organization.

<i>Domain</i>	<i>Example</i>
Social influences	External pressure, norms (behavior rules) from the environment/colleagues, support from the environment, cooperation and coordination, be a role model.
Emotion	Anxiety, stress, other personal matters that affect.
Behavioral Regulation	Breaking habits, seeing opportunities, planning behavioral change, self-monitoring (keeping an eye on the progress of your own behavior).

Finally

1. Do you have any additions to this interview?
2. Do you have any comments regarding this interview?
3. Do you want to participate again in research?

This interview protocol was developed based on Cane et al.²² and Michie et al.²⁸ and supplemented by the description of the VGN competences³²⁻³⁵ (Dutch Association of ID care provider services).

