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Autonomy Support, Need Satisfaction, and Motivation for Support Among Adults With Intellectual Disability: Testing a Self-Determination Theory Model

Noud Frielink, Carlo Schuengel, and Petri J. C. M. Embregts

Abstract

The tenets of self-determination theory as applied to support were tested with structural equation modelling for 186 people with ID with a mild to borderline level of functioning. The results showed that (a) perceived autonomy support was positively associated with autonomous motivation and with satisfaction of need for autonomy, relatedness, and competence; (b) autonomous motivation and need satisfaction were associated with higher psychological well-being; (c) autonomous motivation and need satisfaction statistically mediated the association between autonomy support and well-being; and (d) satisfaction of need for autonomy and relatedness was negatively associated with controlled motivation, whereas satisfaction of need for relatedness was positively associated with autonomous motivation. The self-determination theory provides insights relevant for improving support for people with intellectual disability.

Key Words: *self-determination theory; autonomy support; autonomous motivation; need satisfaction*

Working towards greater equity, the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD; United Nations, 2006) stresses that irrespective of type of disability, persons with a disability should obtain better opportunities for taking control over their own lives and making their own decisions. As people are interdependent with one another, in making their own decision each individual requires a mixture of supports to function on a daily basis (Thompson et al., 2009). According to the supports model of Thompson and colleagues (2009), people with intellectual disability (ID) more often than people without ID experience a mismatch between their personal competence and environmental demands, resulting in particular types and intensity of support needs. In this respect, support is defined as the resources and strategies that enhance human functioning (Thompson et al., 2009). Whereas personal competence is critical for the supports model regarding optimal human functioning, the Self-

Determination Theory (SDT; Deci & Ryan, 2000) highlights two additional imperative constructs for optimal human functioning: autonomy and relatedness. Indeed, it is the environment that should satisfy the needs for autonomy, relatedness, and competence by providing an autonomy supportive environment. Autonomy support involves an environment that minimizes control and pressure while supporting self-initiatives, offering pertinent information, providing choices, and taking the other's perspective (Williams et al., 2006), thus helping to realize the aims of the UNCRDP to foster taking control and making own decisions. Within non-intellectual disabled populations, autonomy support is critical for, among other outcomes, subjective well-being (Deci & Ryan, 2000). For example, Chirkov and Ryan (2001), reported that adolescents from both the United States and Russia who perceived their teachers and parents as autonomy supportive experienced greater well-being. In addition, Ratelle, Simard, and Guay

(2013) found that when university students perceived autonomy support from significant others in their lives (i.e., their romantic partner, parents, and friends) with respect to their academic choices and decisions, they reported higher levels of happiness and satisfaction.

According to SDT, the linkage between autonomy support and subjective well-being is mediated by two sets of cognitions: (1) basic psychological need satisfaction and need frustration, and (2) autonomous motivation (Deci & Ryan, 2000; Ryan & Deci, 2000). To the best of our knowledge, no studies have examined the association between autonomy support and subjective well-being among people with ID, and therefore such a study is poised to add a potential dynamic factor to well-known, more static factors in well-being, such as, income, education, occupation, and demographical characteristics like age and gender (e.g., Brackett, Rivers, Shiffman, Lerner, & Salovey, 2006; Kahneman, Diener, & Schwarz, 1999; Keyes, Shmotkin, & Ryff, 2002).

Basic Psychological Need Satisfaction and Frustration

Deci and Ryan (2012) postulated that autonomy together with relatedness and competence are innate, universal psychological needs. The need for autonomy refers to having the feeling that one has a sense of choice and volition. The need for relatedness is about feeling connected to and taking care of and/or for by other people. The need for competence refers to feeling effective in achieving valued outcomes. Regardless of level of intellectual functioning, satisfaction of these needs is vital for people to flourish, to experience subjective well-being, and to prevent maladaptive functioning (Deci, 2004; Ryan & Deci, 2000). For example, on the basis of their cross-cultural study, Church and colleagues (2013) found that perceived need satisfaction predicted well-being in college students in eight countries. Moreover, Ryan, Bernstein, and Brown (2010) showed that daily fluctuations in perceived need satisfaction co-varied with daily fluctuation in well-being.

An important distinction has to be made between need satisfaction and need frustration (Bartholomew, Ntoumanis, Ryan, Bosch, & Thøgersen-Ntoumani, 2011; Vansteenkiste & Ryan, 2013). Whereas need satisfaction is strongly related to well-being, need frustration uniquely predicts ill-being. That is, a low score on need

satisfaction (*dissatisfaction*) is conceptually different from need frustration (e.g., "I do not feel related" vs. "I feel rejected"). For example, individuals may feel lonely because their need for relatedness with their family gets deprived (dissatisfaction) or because attempts to establish contact are thwarted (i.e., need frustration). Such frustrations may cause specific emotions, such as humiliation and defeat in the case of rejection by others (Bartholomew, Ntoumanis, Ryan, & Thøgersen-Ntoumani, 2011). Differential emotional responses to low need satisfaction and need frustration may predict differential associations with adaptive and maladaptive developmental outcomes. For example, in their study among athletes, Bartholomew, Ntoumanis, Ryan, Bosch, and Thøgersen-Ntoumani (2011) found that need satisfaction was related to positive outcomes with respect to sport participation (i.e., positive affect and vitality), whereas need frustration was related to maladaptive developmental outcomes (i.e., negative affect, burnout, and depression). Furthermore, need satisfaction was related to athletes' perceptions of autonomy support, whereas need frustration was associated with coach control.

Autonomous Motivation and Controlled Motivation

According to SDT, motivation is differentiated in types (Deci & Ryan, 2000), rank ordered from a total lack of motivation (i.e., amotivation) to engagement in an activity because the activity in itself is enjoyable or interesting (i.e., intrinsic motivation). Bridging amotivation and intrinsic motivation, the SDT differentiates four subtypes of extrinsic motivation varying in the extent to which their regulation is autonomous (Ryan & Deci, 2000): external motivation, introjected motivation, identified motivation, and integrated motivation. The least autonomous subtype of extrinsic motivation, external motivation, occurs when people take action in order to avoid punishment, to obey an external request, or to obtain a reward. The second subtype of extrinsic motivation is called introjected motivation and drives action to manage feelings of pride and worth, and to evade shame and guilt. External motivation and introjected motivation are, together, considered as *controlled motivation*. Third, a more autonomous subtype of extrinsic motivation is called identified motivation, which refers to actions that are valued by the person. Last, the

most autonomous subtype of extrinsic motivation is labeled as integrated motivation, driving actions that are fully endorsed by other behaviors and values of the person. Identified and integrated motivation, along with intrinsic motivation, are considered as *autonomous motivation*.

Autonomous motivation and controlled motivation are differentially linked to outcomes in non-intellectually disabled people. Autonomous motivation is associated with positive behaviors and outcomes such as better life satisfaction and subjective well-being (Ryan & Deci, 2000), greater adherence to medications among people with chronic illnesses (Williams, Rodin, Ryan, Grolnick, & Deci, 1998), greater levels of physical activity (Levesque et al., 2007), and greater involvement and better psychotherapy outcomes (Zuroff et al., 2007). In contrast, controlled motivation is associated with negative outcomes such as depression (Levesque et al., 2007) and ill-being (Deci & Ryan, 2008). Therefore, given the focus of the current study on well-being and its potential association with autonomous motivation, the primary focus of the analyses in this study was on autonomous motivation rather than controlled motivation. However, the relationship between controlled motivation and ill-being was also taken into account.

The Current Study

As is apparent from the previous discussion, autonomy support, need satisfaction, and autonomous motivation are related, fundamental constructs within SDT and important for subjective well-being. In a similar vein, need frustration and controlled motivation are related constructs, highly associated with ill-being. Although it has been argued that autonomy support, need satisfaction, and autonomous motivation are universally important (Deci, 2004; Deci & Ryan, 2000), these ideas have been seldom tested with people with ID. Based on their study among students with a learning disability, Deci, Hodges, Pierson, and Tomassone (1992) concluded that students functioned better with an autonomy-supportive teacher rather than a controlling teacher. A qualitative report by Farrell, Crocker, McDonough, and Sedgwick (2004) suggested that motivational orientations of people with ID may be stimulated by autonomy-supportive environments. In addition, Katz and Cohen (2014) assessed autonomous motivation in students with ID with a borderline level of functioning (IQ between 70 and 85) using a projective instrument developed by Katz, Assor, and Kanat-Maymon (2008). The results of their study provided support for the SDT-assumption that, also among people with ID, autonomous motivation is related to well-being.

To the best of our knowledge, however, no studies have been conducted to test the theoretical premises of SDT among people with ID within one statistical model. Therefore, the aim of the current study was to test whether a model linking psychological concepts according to the tenets of SDT would fit with data from people with ID with a mild level of functioning (defined as IQ between 50 and 70) and people with ID with a borderline level of functioning (IQ between 70 and 85), hereafter designated as people with ID with a mild to borderline level of functioning, who received at least weekly paid support. As people with ID with a borderline level of functioning often have comparable characteristics and support needs to people with ID with a mild level of functioning, people with ID with a borderline level of functioning and problems in their adaptive functioning in the Netherlands are eligible to the same specialized mental health care organizations as people with ID (IQ < 70). Hence, this target group is commonly included in research, practice, and policy in the Netherlands. The defined SDT-model focused on the domain of support, because support is an important domain in the lives of people with ID with a mild to borderline level of functioning, and therefore served as a first test domain.

In sum, the current study examined to what extent a model based on SDT would provide a parsimonious account of the linkages between autonomy support, need satisfaction, autonomous motivation, and subjective well-being in people with ID with a mild to borderline level of functioning. In order to do so, we first assessed the global model fit of the presented model using structural equation modelling. Next, the individual paths within the model were examined to provide support for the relationships between the SDT-constructs. That is, it was first hypothesized that autonomy support from support staff would relate positively to autonomous motivation for continuing support, well-being, and the satisfaction of the basic needs for autonomy, relatedness, and competence, whereas it would relate negatively to controlled motivation for continuing support and ill-being. Second, it was hypothesized that need satisfaction would relate positively to autonomous motivation for continuing support and

negatively to controlled motivation for continuing support. Third, it was hypothesized that both autonomous motivation for continuing support and need satisfaction would associate positively with well-being (measured as subject well-being and general life satisfaction) and negatively with ill-being (measured as depression), whereas controlled motivation for continuing support would link to greater ill-being. Last, the indirect effects within the model were examined. That is, it was hypothesized that both autonomous motivation for continuing support and need satisfaction would mediate the relationship between autonomy support and well-being. Moreover, it was hypothesized that autonomous motivation for support would mediate the relationship between need satisfaction and well-being. It should be noted in this respect that given the strong theoretical arguments within SDT for the hypothesized mediators, we added the mediators directly into the model instead of subjecting these to exploratory analyses. The conceptual model of the current study is presented in Figure 1.

Materials and Methods

Participants

Participants ($N = 186$; 110 male) ranged in age from 18 to 84 years ($M = 40.3$ years, $SD = 14.9$).

Inclusion criteria were (a) an age ≥18 years, (b) an IQ-score between 50 and 85, and (c) at least weekly contact for a minimum of three months with paid support staff. The support provided by support staff was delivered by four ID services in the Netherlands which offer residential homes, 24-hour community residences, ambulant support at clients' own homes, and day care, and focused primarily on improving skills such as household tasks, using money, and travelling independently. Mental health care was part of these ID services. The mean IQ on file was 67; 109 participants had ID with a mild level of functioning and 77 had ID with a borderline level of functioning. Additional demographic characteristics of the participants are described in Table 1.

Measures

Basic Psychological Need Satisfaction and Frustration Scale–Intellectual Disability (BPNSFS-ID). The BPNSFS was originally developed by Chen and his colleagues (2015) and adapted by Frielink, Schuengel, and Embregts, 2016 for use among people with people with ID with a mild to borderline level of functioning. The BPNSFS-ID assesses both satisfaction and frustration of the three basic psychological needs for autonomy, relatedness, and competence. Hence, in addition to the concept of personal competence
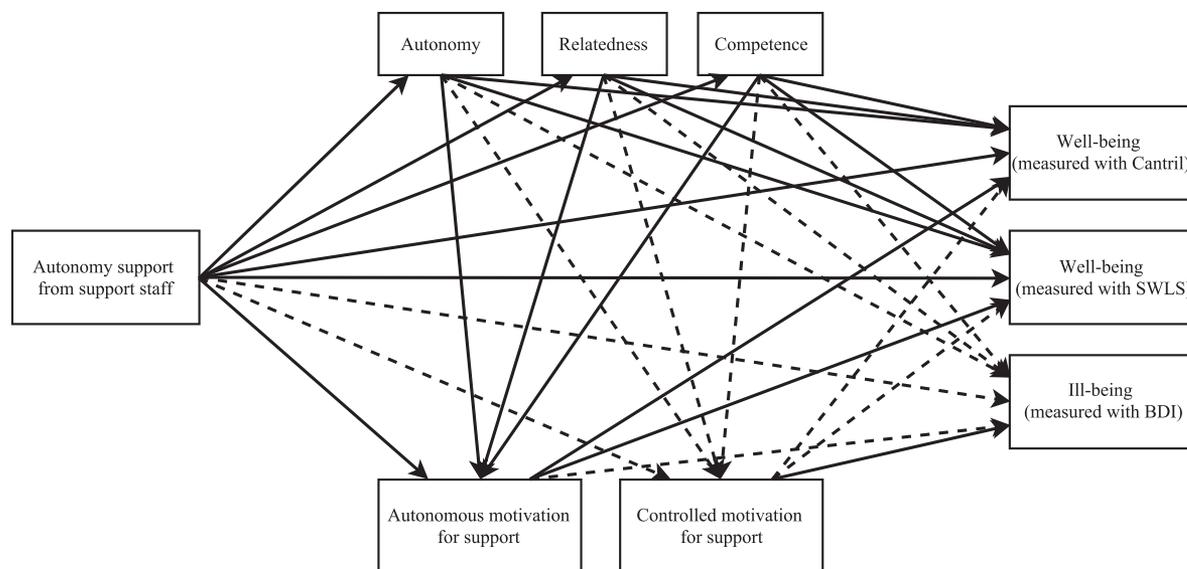

Figure 1. The main premises of self-determination theory among people with ID with a mild to borderline level of functioning. The solid black arrows indicate hypothesized positive direct effects, whereas the dashed black arrows indicate hypothesized negative direct effects. SWLS = Satisfaction With Life Scale; BDI = Beck Depression Index–II–Dutch version.

Table 1

Demographic Information With Respect to the 186 Participants of the Current Study

Demographics	N	(%)	M	SD
Gender				
Male	110	59		
Female	76	41		
Age in years			40.3	14.9
20–29	62	33		
30–39	32	17		
40–49	41	22		
50 and over	51	27		
Level of intellectual functioning			67.3	9.4
Intellectual disability with a mild level of functioning	109	59		
Intellectual disability with a borderline level of functioning	77	41		
Living condition				
Living independently in community (with or without partner)	67	36		
Living with family	12	6		
Living in supported accommodation in the community	84	46		
Living in supported accommodation in residential facility	23	12		
Ethnicity				
Caucasian	178	96		
Other	8	4		
Length of contact with support staff in months			48.7	50.3
3–6 months	12	6		
7–12 months	26	14		
13–24 months	39	21		
24–60 months	66	35		
Over 60 months	38	20		
Unspecified, but > 3 months	5	3		

within the supports model of Thompson and colleagues (2009), we also focus on the needs for autonomy and relatedness. The BPNSFS-ID consists of 24 items (eight for each subscale; four for satisfaction and four for frustration) and includes items such as "In my life, I can do whatever I want when I want" (satisfaction of the need for autonomy), "In my life, I feel excluded by the people who I would like to belong to" (frustration of the need for relatedness), and "In my life, I have the feeling that I can reach my goals" (satisfaction of the need competence). All items were rated on a 5-point Likert scale (1 = *completely untrue*, 5 = *completely true*). Frielink et al. (2016) confirmed an adequate factorial structure of the BPNSFS-ID, comprising the satisfaction and frustration of each of the three needs. Moreover, they found an internal consistency of the BPNSFS-ID of .92.

Self-Regulation Questionnaire–Support (SRQ support). The Treatment SRQ (TSRQ) was originally developed by Williams, Grow, Freedman, Ryan, and Deci (1996) and adapted into the SRQ support by Frielink, Schuengel, and Embregts (2017a) for use among people with people with ID with a mild to borderline level of functioning. The SRQ support assesses the degree to which a person's motivation for continuing support is autonomous versus controlled. The SRQ support consists of 12 items, all measured on a 5-point Likert scale (1 = *completely untrue*, 5 = *completely true*). Participants are asked to evaluate how well each statement represents their reasons for continuing their support, differentiating between four subscales: external motivation (e.g., "I want to receive support because other people may otherwise think that I am a weak person."), introjected motivation (e.g., "I stick to my support

appointments because I will otherwise feel guilty"), identified motivation (e.g., "I want to receive support because I think it is the best way to help myself."), and integrated motivation (e.g., "I stick to my guidance agreements because I think that they help me reach my goals"). Frielink et al. 2017a) confirmed the 4-factor structure of the SRQ support. Moreover, they found an internal consistency of the overall SRQ support scale of .59. The internal consistency for each latent variable ranged between .56 and .75, and the 2-week-test-retest reliabilities of the latent variables ranged between .62 and .77.

Health Care Climate Questionnaire–Intellectual Disability (HCCQ-ID). The HCCQ was originally developed by Williams and colleagues (1996) and adapted into the HCCQ-ID by Frielink, Schuengel, and Embregts (2017b) for use among people with ID with a mild to borderline level of functioning. The HCCQ-ID assesses participants' perceptions of the degree to which their support staff is autonomy-supportive during the support. The questionnaire consists of 15 items on a 5-point Likert scale (1 = *completely untrue*, 5 = *completely true*). The original scale was a 7-point Likert scale, but for the purpose of this study, the response format was reduced from seven to five response choices (Hartley & MacLean, 2006). Questions included "My support staff answers my questions fully and carefully" and "I feel understood by my support staff." A global mean score for the HCCQ-ID was calculated by summing the scores of the corresponding items, after reversing the single reverse-scored item (i.e., item 13), and dividing the total score by the number of items; higher mean scores represent higher levels of perceived autonomy support. Frielink et al. (2017b) confirmed the 1-factor structure of the HCCQ-ID. In addition, they found an internal consistency of the HCCQ-ID .93 and a 2-week-test-retest reliability of .85.

Satisfaction With Life Scale (SWLS). The SWLS (Diener, Emmons, Larsen, & Griffin, 1985) is a 5-item self-report questionnaire that assesses global life satisfaction and includes items such as "In most ways, my life is ideal." The SWLS is available in numerous languages, including Dutch (Arrindell, Heesink, & Feij, 1999). In a pilot, five persons with ID with a mild to borderline level of functioning completed this Dutch SWLS and found four of the five items easy to comprehend. Based on their recommendations, minor adaptations to the phrasing were made to one item (i.e.,

item 4) to improve clarity. On the original scale, the response format comprised a 7-point Likert scale. Again, for the purpose of this study, the response format was reduced to five response choices, whereas 1 = *completely untrue* and 5 = *completely true*. Item responses were averaged; higher scores indicated higher levels of life satisfaction. Recently, Lucas-Carrasco and Salvador-Carulla (2012) examined the psychometric properties of the SWLS in people with ID. Consistent with previous studies (Diener et al., 1985; Pavot & Diener, 2008), they found a one-factor structure to yield the best fit. In addition, a Cronbach's alpha of .79 was found and convergent validity showed moderate-to-high correlations with two general questions of the WHOQOL-BREF (WHOQOL-Group, 1998).

Cantril ladder. Subjective well-being was assessed by Cantril's Ladder of Life (Cantril, 1965). It is a single-item measure asking participants the following question (in Dutch): "Here is a picture of a ladder. Suppose the top of the ladder represents the best possible life (10) for you and the bottom of the ladder the worst possible life (0). Where on this ladder do you feel you personally stand at the present time?". A higher score indicates better well-being. The Cantril ladder has been used in numerous studies among various populations and in different settings, including studies with people with a learning disability (e.g., Canha, Simões, Matos, & Owens, 2016; Pacoricona Alfaro et al., 2016), and a study with people with cerebral palsy and ID (Mesterman et al., 2010), and is considered to be a valid and reliable measure of subjective well-being (Atkinson, 1982; Jenkins et al., 2005; Kempen, Jelicic, & Ormel, 1997). Dagnan and Ruddick (1995) have demonstrated the effectiveness of the use of visual analogue scales with people with a learning disability.

Beck Depression Inventory–II–Dutch Version (BDI-II-NL). The BDI-II-NL (Beck, Steer, & Brown, 1996; Van der Does, 2002), a 21-item self-report scale, assesses severity of depression symptoms corresponding to the Diagnostic and Statistical Manual of Mental Disorders-IV (DSM-IV, American Psychiatric Association, 1994). Items of the BDI-II-NL involved different symptoms of depression such as hopelessness, guilt, sadness, self-blame, loss of appetite, and exhaustion. On each item, respondents are asked to select out of four statements the statement that best represents their current mood over the last two weeks.

Answers were scored from 1 to 4 (higher score implies more severe depressive symptoms), resulting in a total score between 21 and 84. Lindsay and Skene (2007) performed factor analyses, confirming the same factor structure of the scale in people with ID compared to the typical population. McGillivray and Kershaw (2015) found a Cronbach's alpha for the BDI-II of .86 among people with ID.

Procedure

After ethical approval by the Ethics Committee of Tilburg University, data collection took place between June 2013 and September 2014 within four ID services in the Netherlands. Depending on the size of the ID service, the authors selected at random potential participants for each organization, whereupon study information was sent to all support staff of these potential participants by mail to explain the purpose of the study. Next, the first author contacted the potential participants individually by telephone, explaining the purpose of the study and inviting them to participate. A total of 368 individuals were invited to participate in the study; 165 declined, resulting in 203 participants. The main reasons for not participating were the time investment (1.5 hr) or because support staff reasoned that participation would be too stressful for them. With those who accepted the invitation, an appointment was made, at least one week after the phone call, to provide enough time to reconsider their participation. After participation, 17 participants were excluded because they did not meet the inclusion criteria, leaving a total of 186.

The first author visited each participant two times for the duration of approximately 45 to 60 min per visit, unless the participant understood the questions rapidly; in those cases all questionnaires were filled in during one visit. After a brief initial conversation to put the participant at ease, the purpose of the study was explained once again and if the participant agreed to participate, an informed consent form was filled in. Because it was expected that not all participants were able to read the questions themselves, and in order to maintain the same procedure for all participants, during each measurement the researcher read each question aloud from the computer while the participant sat next to the researcher to read along. The participant verbally indicated the response by giving the number (in most cases 1 to 5) which was then recorded and logged by the researcher on the computer using the online survey software Qualtrics. In case no internet connection was available, the questionnaires were filled in on paper and entered in Qualtrics at a later time. Fidelity of these data entries was checked in 20% of the surveys; no errors were found. The vast majority of the participants understood all items; for those who needed help, a standardized explanation was given. If a participant did not understood the item after this standardized clarification, the item response was recorded as missing. After approximately 45 to 60 min, depending on concentration, attention span, and stamina, the visit was stopped and, in consultation with the participant, continued the next week. After completing all questionnaires, the participants received a 10 euro cash reward.

Data Analysis

The analysis were carried out in four steps. First, data were screened for normality and multicollinearity. Second, preliminary analyses of means, standard deviations, range of the data, and the Cronbach's alpha's (α) of the latent variables that were included in the model were computed. Third, the proposed path model was tested using Mplus 7.31 (Muthén & Muthén, 1998-2015). Fourth, the standardized parameter estimates were computed to assess whether the direct and indirect relationships within the model were significant.

Given the complexity of the model and the sample size, we used item parceling (Kline, 2011). The parcels were constructed using a balancing approach (Little, Rhemtulla, Gibson, & Schoemann, 2013). That is, the item with the highest item-scale correlation and the item with the lowest item-scale correlation are paired in the first parcel. Next, the second highest item and the second lowest item are paired to form the second parcel, and the third highest item and third lowest item are paired in the third parcel. Presuming that we want to generate three parcels and we have nine items, the seventh lowest item is placed in parcel three, the eighth lowest item in parcel two, and the ninth lowest item in parcel one.

As the HCCQ-ID consists of 15 items, we divided the items into five parcels of three items each. The BPNSFS-ID entails 24 items, eight for each of the three basic psychological needs (i.e., autonomy, relatedness, and competence). The eight items per need were divided into two parcels with four items each. Although the SRQ support

consists of 12 items, Frielink et al. (2017a) suggested that, based on confirmatory factor analysis, four items should be removed. Of the remaining eight items, four related to controlled motivation and four related to autonomous motivation; the four items per type of motivation were divided into two parcels. As the SWLS consists of 5 items, two parcels were generated with the first parcel containing two items and the second parcel three items.

With respect to the path model, the global model fit was assessed using the robust maximum likelihood MLR estimator for clustered continuous data was used. Although most data were collected on an ordinal scale (5-point Likert scale), the data were treated as continuous because continuous MLR is a good estimation choice for ordinal data with five or more categories (Rhemtulla, Brosseau-Liard, & Savalei, 2012). To evaluate the goodness of model fit, four statistics were used (Kline, 2011; Schweizer, 2010). First, the normed chi-square was evaluated for model fit; a value < 3 was considered an acceptable fit and a value < 2 a good fit (Bollen, 2014). Second, the comparative fit index (CFI) was assessed, with values between .90 and .95 suggesting an acceptable model fit and values > .95 a good fit (Hu & Bentler, 1999). Third, standardized root mean square residual (SRMR) values < .10 indicated an acceptable fit (Kline, 2011). Fourth, root mean square error of approximation (RMSEA) values between .05 and .08 were considered as acceptable fit and values < .05 indicated a good fit (Browne & Cudeck, 1993).

Results

Preliminary Analysis

Prior to the path analysis, the data were screened to investigate whether the assumption of normal distribution was satisfied. As the skewness and kurtosis of all observed variables were < 2 and < 7, respectively, the data were normally distributed (West, Finch, & Curran, 1995). In order to test the multicollinearity, the Variance Inflation Factors (VIF) were calculated. Although there is no conventional rule of thumb, it is suggested that VIF-values above 10 signifies the presence of multicollinearity (Tabachnick & Fidell, 2007). As the data did not show VIF-values greater than 10 (i.e., the highest VIF-value was 5.2), multicollinearity was not assumed. The means, standard deviations, range of the data, and the Cronbach's alpha's (α) of the latent variables that were included in the model are presented in Table 2.

Moreover, all parcels loaded significantly on the hypothesized latent variables at a $p < .001$ level. The standardized loadings varied as follows: between .83–.90 for the latent variable autonomy support, between .87–.90 for autonomy, between .88–.99 for relatedness, between .88–.89 for competence, between .51–.77 for controlled motivation, between .71–.94 for autonomous motivation, and between .82–.88 for well-being measured with the SWLS.

Path Analysis

The results of the path analysis showed an adequate to good fit of the data with the SDT-model as described in Figure 1. That is, although the chi-square test was significant, suggesting that

Table 2

Means, Standard Deviations, and Cronbach's Alpha Coefficients for the Latent Variables Used in the Study

Latent variable	M	SD	Min-Max	α
Autonomy support	4.01	.56	1.93–5.00	.94
Controlled motivation	2.17	.65	1.00–4.00	.69
Autonomous motivation	3.86	.55	2.00–5.00	.77
Autonomy	3.92	.56	1.50–5.00	.87
Relatedness	4.02	.64	1.88–5.00	.91
Competence	3.64	.54	1.88–5.00	.86
Well-being (satisfaction with life)	3.58	.69	1.80–5.00	.85
Well-being (Cantril)	7.18	1.73	3.00–10.00	—
Ill-being	28.66	8.00	19.00–71.00	.90

Note. SWLS = Satisfaction With Life Scale; BDI = Beck Depression Index–II–Dutch version.

the model deviated significantly from the data, the model showed the following global fit measures: normed chi-square = 186.73/122 = 1.53, RMSEA = .053, 90 % CI [.037–.068], CFI = .972, SRMR = .084. When controlling for the demographic characteristics of the participants as described in Table 1 (i.e., gender, age, IQ-score, living condition, and length of contact between participants and their support staff; the variable ethnicity was not included as covariate due to the homogeneity of the responses), the model fit was comparable: normed chi-square = 261.13/177 = 1.48, RMSEA = .051, 90 % CI [.037–.064], CFI = .966, SRMR = .070.

The individual paths in the model were examined based on the standardized parameter estimates (see Table 3). With regard to direct relationships, autonomy support was significantly related to the three basic psychological needs (autonomy: β = .57, p < .001; competence: β = .46, p < .001; relatedness: β = .46, p < .001). Autonomy support was also significantly and positively related to autonomous motivation (β = .50, p < .001; unexpectedly, the direct path from autonomy support to controlled motivation was also significant (β = .43, p = .002). With regard to direct relationships to well-being, there was a significant and positive relationship between well-being when measured with the SWLS and the needs for autonomy (β = .41, p < .001), competence (β = .45, p < .001), and relatedness (β = .15, p = .044). Well-being on the Cantril ladder showed a similar pattern, although the relationship with relatedness was not significant (see Table 3). Well-being was also significantly and positively related to autonomous motivation (β = .24, p = .001 when measured with the SWLS and β = .30, p < .001 when measured with the Cantril ladder). The direct paths from autonomy support and from controlled motivation to well-being were not significant. When controlling for the available demographic characteristics of the participants (i.e., gender, age, IQ-score, living condition, and length of contact between participants and their support staff), the direct relationships between the variables were rather similar (see Table 3).

With regard to the indirect relationships, autonomy support was related to controlled motivation indirectly via the mediating variables of autonomy (β = −.32, p = .001) and relatedness (β = −.18, p = .002); competence was not a significant mediating variable (β = −.12, p = .094). In addition, autonomy support was related to

autonomous motivation indirectly via the mediating variable of relatedness (β = .12, p = .011); autonomy (β = −.03, p = .626) and competence (β = −.05, p = .260) were no significant mediating variables. Moreover, autonomy support was significantly related to well-being (measured with the SWLS) indirectly via the mediating variables of autonomy (β = .23, p < .001) and competence (β = .21, p < .001); the relationship with relatedness was borderline significant (β = .07, p = .06). In addition, autonomy support was also related to well-being indirectly via the mediating variable of autonomous motivation (β = .12, p = .02); the indirect relation via controlled motivation was not significant (β = .01, p = .82). A similar pattern of indirect relationships between autonomy support and well-being emerged with the Cantril ladder (see Table 3). Finally, with respect to ill-being, autonomy support was related to ill-being indirectly via the mediating variables of autonomy (β = −.20, p = .04) and competence (β = −.19, p = .002); relatedness was not a significant mediating variable (β = −.04, p = .26). In addition, the indirect paths from autonomy support to ill-being via mediating variables autonomous motivation (β = −.02, p = .53) and controlled motivation (β = .04, p = .46) were not significant. When controlling for the available demographic characteristics of the participants (i.e., gender, age, IQ-score, living condition, and length of contact between participants and their support staff), the indirect relationships between the variables were rather similar (see Table 3).

Discussion

The SDT was largely consistent with the interrelationships found between autonomy support, need satisfaction, autonomous motivation, and subjective well-being among people with ID with a mild to borderline level of functioning. The direct associations as specified by the theory showed an adequate to good fit to the structural model that was tested. In addition, the associations were consistent with autonomous motivation and need satisfaction as explanations for the linkage between autonomy support and well-being. Therefore, similar to the general population, autonomy support, autonomous motivation, and satisfaction of basic psychological needs for autonomy, relatedness, and competence are important, interrelated concepts for people with ID with a mild to

Table 3

The Direct and Indirect Relationships Between the Latent Variables Used in the Study

	Model without covariates		Model with covariates	
	Estimate	*p*-Value	Estimate	*p*-Value
Direct effects				
Autonomy support with				
Autonomy	.57	.00	.56	.00
Relatedness	.46	.00	.47	.00
Competence	.46	.00	.44	.00
Autonomous motivation	.50	.00	.54	.00
Controlled motivation	.43	.00	.39	.00
Well-being (SWLS)	.09	.32	.12	.15
Well-being (Cantril)	.09	.29	.09	.25
Ill-being (BDI)	−.05	.69	−.05	.69
Autonomous motivation with				
Autonomy	−.05	.62	−.06	.59
Relatedness	.26	.01	.22	.03
Competence	−.11	.24	−.08	.40
Controlled motivation with				
Autonomy	−.56	.00	−.55	.00
Relatedness	−.39	.00	−.31	.00
Competence	−.27	.06	−.29	.05
Well-being (SWLS) with				
Autonomy	.41	.00	.37	.00
Relatedness	.15	.04	.18	.01
Competence	.45	.00	.37	.00
Autonomous motivation	.24	.00	.24	.00
Controlled motivation	.02	.82	−.02	.81
Well-being (Cantril) with				
Autonomy	.36	.00	.36	.00
Relatedness	.11	.14	.12	.12
Competence	.29	.00	.25	.00
Autonomous motivation	.30	.00	.30	.00
Controlled motivation	−.09	.23	−.10	.20
Ill-being (BDI) with				
Autonomy	−.35	.00	−.35	.00
Relatedness	−.09	.26	−.07	.34
Competence	−.41	.00	−.41	.00
Autonomous motivation	−.05	.51	−.05	.51
Controlled motivation	.09	.46	.09	.45

(Table 3 continued)

Table 3
Continued

	Model without covariates		Model with covariates	
	Estimate	*p*-Value	Estimate	*p*-Value
Indirect effects				
Autonomy support - Well-being (SWLS) via				
Controlled motivation	.01	.82	−.01	.81
Autonomous motivation	.12	.02	.13	.01
Autonomy	.23	.00	.21	.00
Relatedness	.07	.06	.08	.02
Competence	.21	.00	.16	.00
Autonomy support - Well-being (Cantril) via				
Controlled motivation	−.04	.27	−.04	.26
Autonomous motivation	.15	.00	.16	.00
Autonomy	.21	.00	.21	.00
Relatedness	.05	.15	.05	.14
Competence	.13	.00	.11	.01
Autonomy support - Ill-being (BDI) via				
Controlled motivation	.04	.46	.03	.45
Autonomous motivation	−.02	.53	−.03	.52
Autonomy	−.20	.00	−.20	.00
Relatedness	−.04	.26	−.04	.34
Competence	−.19	.00	−.18	.00
Autonomy support - Controlled motivation via				
Autonomy	−.32	.00	−.31	.00
Relatedness	−.18	.00	−.15	.01
Competence	−.12	.10	−.13	.09
Autonomy support - Autonomous motivation				
Autonomy	−.03	.63	−.03	.59
Relatedness	.12	.01	.11	.03
Competence	−.05	.26	−.04	.41

borderline level of functioning in order to achieve subjective well-being.

Perceived autonomy support from support staff was hypothesized to predict autonomous motivation for continuing support and satisfaction of the basic needs for autonomy, relatedness, and competence, which, in line with previous research (Bartholomew, Ntoumanis, Ryan, Bosch, & Thgersen-Ntoumani, 2011), were both expected to relate to optimal psychological well-being. The results of the current study supported this hypothesis for people with ID with a mild to borderline level of functioning. In addition, with regard to the indirect relationships between these constructs, both autonomous motivation and satisfaction of the needs for autonomy, relatedness, and competence mediated between autonomy support and well-being; it should be mentioned however that relatedness was a borderline significant mediator ($p = .06$). They therefore explain the non-significant direct effect between autonomy support and well-being within this model. These mediating effects parallel results by Deci and colleagues (2001) within a work

environment, showing that management autonomy support was associated with need satisfaction of employees, which, in turn, was associated with, among other outcomes, well-being. Hence, the model confirms that being perceived as autonomy supportive may be an important quality for support staff who aim to support the well-being of people with ID.

In the current study, it was also hypothesized that satisfaction of autonomy, relatedness, and competence would relate positively to autonomous motivation and negatively to controlled motivation for continuing support. The latter part of the hypothesis was supported regarding the needs for autonomy and relatedness, suggesting that the more people with ID with a mild to borderline level of functioning were dissatisfied with their need for autonomy and relatedness, the more they indicated continuing support with a sense of pressure, demand, or coercion. Because need satisfaction supports the internalization of regulation (Deci & Ryan, 2000), satisfaction of the three needs was expected to relate positively with autonomous motivation. However, the results of the current study did not support this tenet; only the relationship between relatedness and autonomous motivation was significant. A possible explanation might be that people with ID perceive autonomy as independence and therefore, when feeling autonomous, believe that they have to make their own decisions without support. In that case, it would make sense that people with ID whose basic psychological needs are satisfied do not experience autonomous motivation for support. However, the opposite of autonomy is heteronomy (i.e., perceiving one's actions as controlled by forces that are alien to the self) rather than dependence (i.e., reliance on other people for support, guidance, or supplies) (Chirkov, Ryan, Kim, & Kaplan, 2003). People can therefore be autonomously dependent on others, willingly trusting their support. An interesting question in this respect is whether one is always aware of the fact that one can be autonomously dependent on others. When focusing on people with ID, it might be even more difficult for them to realize this without being explicitly reminded of this, especially with respect to their support staff due to their dependent, and sometimes long-standing, relationship.

According to the supports model of Thompson and colleagues (2009), personal competence is critical for optimal human functioning. The current study supports this claim while showing that the two additional needs of SDT are also fundamental for optimal human functioning: autonomy and relatedness. Hence, from an SDT perspective, it is imperative for social environments of people with ID not only to focus on competence, but also on the needs for autonomy and relatedness. That is, the social environment should provide client-oriented support by satisfying the needs for autonomy, relatedness, and competence rather than providing support focusing on the mismatch between personal competence of people with ID and environmental demands.

Limitations and Implications for Future Research

Some limitations of this study should be mentioned. First, 165 of the 368 individuals who were invited to participate in the study declined. Because we had no other data available for the non-participants, it was not possible to gauge possible sources of bias. When asked for the reason not to participate, the non-participants mainly indicated that they declined because of the time investment (1.5 hr) or because support staff reasoned that participation would be too stressful for them. Second, in the current study, we measured subjective well-being with two different measures (SWLS and Cantril) and subjective ill-being with the BDI-II-NL. However, SDT embraces the eudaimonic conceptualization of well-being (Ryan & Deci, 2001). Within this conceptualization, subjective vitality, a positive feeling of having available energy originated from the self (Ryan & Frederick, 1997), is an important indicator for well-being. Hence, future research might extend the models tested within the current study by including a measure of subjective vitality as well. Moreover, it would also be interesting to include, besides a measurement for depression, additional measures for ill-being in future research. Third, as all data were based on self-reported measures only, shared method variance may have inflated the associations between the variables under study. Fourth, although part of classification systems, due to the selection procedure, the current study did not take into account the standard error of measurement of the IQ cut scores used to describe the sample size. Last, the design of the current study was cross-sectional, preventing the scope for conclusions about

causality. Moreover, bidirectional relationships between variables, for example between need satisfaction and subjective well-being, cannot be ruled out. Therefore, it would be recommendable to test a similar SDT-model among people with ID with a mild to borderline level of functioning in a longitudinal design in future research. In addition, it would be interesting to further explore the underlying mechanisms of the SDT-concepts using more qualitative research methods (Anderson & Chirkov, 2016).

Implications for Practice

The current findings strengthen the case for client-oriented support made on the basis on adjacent work (Carr, Horner, & Turnball, 1999; Dykens, 2006; Wehmeyer, 2013). This is in line with the UNCRPD (United Nations, 2006) and national policies in most western countries, emphasizing the importance of autonomy of service users in general, including those with ID. The study conclusions support the beneficence of these policies, such that clients' subjective perception of an autonomy supportive environment, need satisfaction, and autonomous motivation were all related to subjective well-being. Given the important role of the social environment in a person's life and the fact that support staff are key people in the lives of people with ID with a mild to borderline level of functioning (van Asselt-Goverts, Embregts, & Hendriks, 2013), support staff have a vital role in providing their client with a feeling of autonomy, relatedness, and competence through support focused on autonomy. Therefore, based on the results of this study, professionals and care organizations are encouraged to further increase the level of autonomy supportive care and client-oriented support by incorporating the principles of SDT in their interpersonal approach.

Moreover, the current study has critical implications for how treatment programs and interventions should be developed to promote autonomous motivation, especially because numerous treatment programs and interventions are built on concepts of controlled motivation. As autonomous motivation is related to subjective well-being, it is important to pay more attention to this understudied topic in the ID field. Recently, on the basis of a multiple-case experimental design, Frielink, Schuengel, Kroon, and Embregts (2015) provided initial evidence that motivation of people with ID with a mild to

borderline level of functioning to change substance abusive behavior can be influenced through an intervention based on SDT. However, given the importance of autonomous motivation, we urge for more research in this area, but also for more attention with respect to autonomous motivation in daily support and in treatment programs and interventions.

Concluding Remarks

Overall, the results of the current study support the applicability of an SDT-model regarding support among people with ID with a mild to borderline level of functioning. By showing that autonomy support, autonomous motivation, as well as the needs for autonomy, competence, and relatedness were associated with psychological well-being, universality claims of the SDT were bolstered. The results should nonetheless be interpreted with caution, as more research is required to further investigate the causality of the direct and indirect relationships. That is, SDT shows potential as a guide towards enhancing subjective well-being and thus quality of life of people with ID with a mild to borderline level of functioning through support focused on autonomy.

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