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# Autonomy support in people with mild-to-borderline intellectual disability: Testing the Health Care Climate Questionnaire-Intellectual Disability

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**Background:** Autonomy support in people with intellectual disability (ID) is an important yet understudied topic. Psychometrically sound instruments are lacking. This study tested the factor structure and reliability of an instrument for assessing the extent people with intellectual disability perceive their support staff as autonomy supportive.

**Method:** In a single wave, 185 adults with mild-to-borderline intellectual disability filled in an adapted version of the Health Care Climate Questionnaire (i.e., HCCQ-ID). Forty of them participated in a second wave to determine test-retest-reliability. The HCCQ-ID consists of 15 items on a 5-point Likert scale.

**Results:** The expected one-factor structure was found. Internal consistency ( $\alpha = 0.93$ ) and test-retest reliability ( $r = .85$ ) were good. The score distribution was skewed towards high satisfaction.

**Conclusions:** The factor structure and reliability of the HCCQ-ID were supported for people with mild-to-borderline intellectual disability. Given the homogeneous factor structure and the high reliability, the number of items may be further optimized.

## KEYWORDS

autonomy support, factor structure, intellectual disability, reliability, self-determination theory

## 1 | INTRODUCTION

The United Nations Convention on the Rights of Persons with Disabilities (UNCRPD; United Nations, 2006) aims to increase equity between persons with and without disabilities. As part of this, it emphasizes that persons with disabilities should have more opportunities to make their own decisions and to take control of their own lives (i.e., being self-determined). This is important, as self-determination is an essential dimension of quality of life (Schalock & Verdugo, 2002) and has been linked to other positive outcomes for people with intellectual disability over the past decades (e.g., Wehmeyer, 2007; Wehmeyer, Abery, Mithaug, & Stancliffe, 2003). Self-determination theory (SDT) highlights the imperative role of autonomy supportive environments to provide more opportunities for people to develop self-determination

(Ryan & Deci, 2000). The study of self-determination is therefore incomplete unless the amount of autonomy support provided by the social environment is considered. Autonomy support can be described as the extent to which clients perceive that their support staff minimizes control and pressure over them while supporting clients' initiatives, eliciting and accepting their perspective, providing a menu of choices (including the option not to accept support staffs' advice) and providing a rationale for recommendations provided (Williams et al., 2006).

Within care settings for people without intellectual disability, autonomy support is a widely studied topic and related to numerous positive treatment outcomes for clients. That is, perceived autonomy support from professionals within a therapeutic setting fosters, among other things, weight loss (Williams, Grow, Freedman, Ryan, & Deci, 1996), stopping tobacco use (Williams et al., 2006) and reduced

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drop-out rates in people with eating disorders (Vandereycken & Vansteenkiste, 2009). Moreover, autonomy support contributes to the satisfaction of the three basic psychological needs (i.e., the needs for autonomy, relatedness and competence), which, in turn, are essential elements for developing self-determination and subjective well-being (Deci & Ryan, 2000). Autonomy support is frequently measured with the Health Care Climate Questionnaire (HCCQ; Williams et al., 1996). Multiple versions of the HCCQ have been used and adapted for studies on, among other domains, diabetes care (Williams, Lynch, & Glasgow, 2007), physical activity (Fortier, Sweet, O'Sullivan, & Williams, 2007) and medication adherence (Williams, Rodin, Ryan, Grolnick, & Deci, 1998). These studies showed that autonomy support in general is associated with improved health and well-being outcomes.

Although it has been argued that autonomy support is universally important (Deci, 2004; Ryan & Deci, 2000), there is a scarcity of research with people with intellectual disability. Recently, Emond Pelletier and Joussemet (2016) conducted a study showing that autonomy support can foster a sense of autonomy of people with a mild intellectual disability. However, Emond Pelletier and Joussemet (2016) did not measure to what extent the participants actually experienced autonomy support. According to SDT, this subjective experience of autonomy support is however fundamental and should be included in future research. Due to a lack of psychometrically adequate instruments for measuring perceived autonomy support in people with intellectual disability, this study focused on the factor structure and reliability of the HCCQ-Intellectual Disability (HCCQ-ID).

## 2 | METHOD

### 2.1 | Participants

Selected through simple random sampling, a total of 185 people with mild intellectual disability (IQ between 50 and 70) and with borderline intellectual functioning (IQ between 70 and 85), hereafter designated as people with mild-to-borderline intellectual disability, from four intellectual disability services in a mixed urban/rural area in the southern part of the Netherlands participated. People with borderline intellectual functioning and problems in their social adaptive functioning are eligible to the same health care organizations as people with an intellectual disability (IQ < 70) in the Netherlands. Hence, people with borderline intellectual functioning who experience problems in their social adaptive functioning are commonly included in research, clinical practice and policy in the Netherlands.

All participants (110 males) were aged  $\geq 18$  years ( $M = 40.3$ ,  $SD = 14.9$ , range = 18.1–84.8) and had at least weekly support provided by support staff for a minimum of 3 months. The provided support focused primarily on improving skills such as using money, travelling independently and household tasks. The vast majority were Caucasian participants (96%); the other participants had diverse ethnicities. Sixty-seven participants (36%) lived independently in the community (with or without partner), and 107 (58%) lived in a supported accommodation, either in the community

( $n = 84$ , 46%) or in a residential facility ( $n = 23$ , 12%); the remaining 12 participants (6%) lived with their family. The level of intellectual functioning was ascertained through data from psychometric sounds IQ tests as described in participants' files: 109 participants had a mild intellectual disability (IQ 50–70), and 76 participants had a borderline level of intellectual functioning (IQ 71–85). Although the used IQ tests differed, most of the participants were tested with the WAIS III/WAIS IV.

### 2.2 | Measure

The Health Care Climate Questionnaire (HCCQ) was originally developed by Williams et al. (1996). The goal was to measure to what extent participants perceive their medical health care provider as autonomy supportive. For this study, the questionnaire was translated into Dutch by two researchers with knowledge on both ID and SDT. While preserving the item content according to SDT, researchers adapted the items to be comprehensible for people with mild-to-borderline intellectual disability. Next, together with an experienced professional working with people with mild-to-borderline intellectual disability, a consensus version was developed based on the adaptations. For example, the original item "My physician handles people's emotions very well" was modified into (translated from Dutch) "My support staff take me and my feelings seriously." In addition, the original item "I am able to be open with my physician at our meetings" was adapted into (translated from Dutch) "I can discuss anything during conversations with my support staff." As can be seen from the examples, the modified items did not focus on medical health care providers but on support staff of people with intellectual disability, because these professionals have an important role in the lives of people with intellectual disability (van Asselt-Goverts, Embregts, & Hendriks, 2013). This consensus version was discussed with all authors of this study, resulting in minor adjustments. Finally, five persons with mild-to-borderline intellectual disability completed this adapted HCCQ-ID and indicated that the items were easy to interpret and to respond to. A few minor adaptations to the grammar were made to improve clarity (i.e., the word order was changed for some items).

The HCCQ-ID consists of 15 items on a 5-point Likert scale (1 = completely untrue, 5 = completely true). Questions included (in Dutch) "My support staff answers my questions fully and carefully" and "I feel understood by my support staff." A scale score was calculated by averaging the item scores after reversing the reverse-scored item (i.e., item 13). Higher average scores indicated higher levels of autonomy support. Previous studies using the original HCCQ revealed a one-factor solution and an excellent internal consistency (Cronbach's alpha) of 0.95 (Williams et al., 1996).

### 2.3 | Procedure

Following ethical approval by the Ethics Committee of Tilburg University, 368 individuals who met the inclusion criteria (i.e., mild-to-borderline intellectual disability, aged  $\geq 18$  years, and at least

weekly contact for a minimum of 3 months with support staff) were randomly selected from four intellectual disability services in the southern part of the Netherlands. Study information was sent to support staff of the participants by mail to explain the aim of the study. Next, the first author contacted the individuals by telephone, explaining the objective of the study and inviting them to participate. In total, 203 participants expressed interest in the study by accepting the invitation. The main reasons for not participating were time investment (1.5 hr) or the expectation that participation would be too stressful for them according to support staff. As the data presented in this study were part of a larger research study, multiple questionnaires were administered, including the HCCQ-ID. After participation, 18 participants were excluded: 17 because they did not meet the inclusion criteria and one because she did not fill in the HCCQ-ID, leaving a total of 185.

During each measurement, all items were read aloud by the researcher while the participants were able to read along. Subsequent, the participants were invited to answer each item verbally, which was then recorded and logged by the researcher. Whereas some participants preferred responding using the qualifiers of the response options (e.g., completely true), most participants responded using the numbers (e.g., 5).

To measure the 2-week test-retest reliability of the HCCQ-ID, 20 per cent of the participants ( $n = 40$ ) were interviewed a second time. These 40 participants were randomly selected from the 203 individuals who initially participated in this study; all agreed to participate. None of them belonged to the 18 individuals who were excluded from the study afterwards for not meeting the inclusion criteria or for not filling in the HCCQ-ID. The first author, who administered all measurements in the first wave, re-administered the HCCQ-ID among 20 participants in this second wave; a trained research assistant re-administered the HCCQ-ID among the other 20 participants.

### 3 | RESULTS

#### 3.1 | Preliminary analysis

Although the skewness and kurtosis of all observed variables were below 2 and 7, respectively, the score distribution within the current sample was skewed towards high satisfaction. The mean value of the overall HCCQ-ID score was 4.01 ( $SD = 0.56$ , range = 1.93–5.00).<sup>1</sup> At item level, the mean scores varied between 3.60 ( $SD = 0.79$ , range = 1.00–5.00) for item 14 and 4.41 ( $SD = 0.67$ , range = 2.00–5.00) for item 12.

#### 3.2 | Factor structure

To investigate the factor structure, a confirmatory factor analysis (CFA) was conducted using AMOS. Although a new measure had been created with the HCCQ-ID, CFA was preferred over an

exploratory factor analysis because of the robust evidence within the literature of a one-factor structure of the HCCQ. As Little's MCAR test ( $\chi^2 [119, N = 185] = 138.03, p = .11$ ) was not significant (i.e., missing values are completely random), the expectation maximization (EM) estimation in SPSS was used to impute the missing values (1.12% of all values were missing). Following the recommendations of Schweizer (2010), the model fit was evaluated by four fit indices: (i) normed Chi-square <2 is considered a good model fit and a value <3 an acceptable model fit; (ii) Root Mean Square Error of Approximation (RMSEA) values <0.05 are considered as good, whereas values between 0.05 and 0.08 are considered as acceptable; (iii) Bentler's Comparative Fit Index (CFI) signifies a good model fit for values >0.95, whereas values between 0.90 and 0.95 indicate an acceptable fit; and (iv) standardized root mean square residual (SRMR) values <0.10 are considered acceptable. In addition, to detect misspecifications within the model, "the detection of misspecification" procedure (Saris, Satorra, & van der Veld, 2009) was also employed. This procedure uses the Modification Index (MI), the Expected Parameter Change (EPC), and the power of the MI test; the minimum size of a misspecification to be detected by the MI test with a high likelihood (power >0.75) was set at 0.10 (Saris et al., 2009).

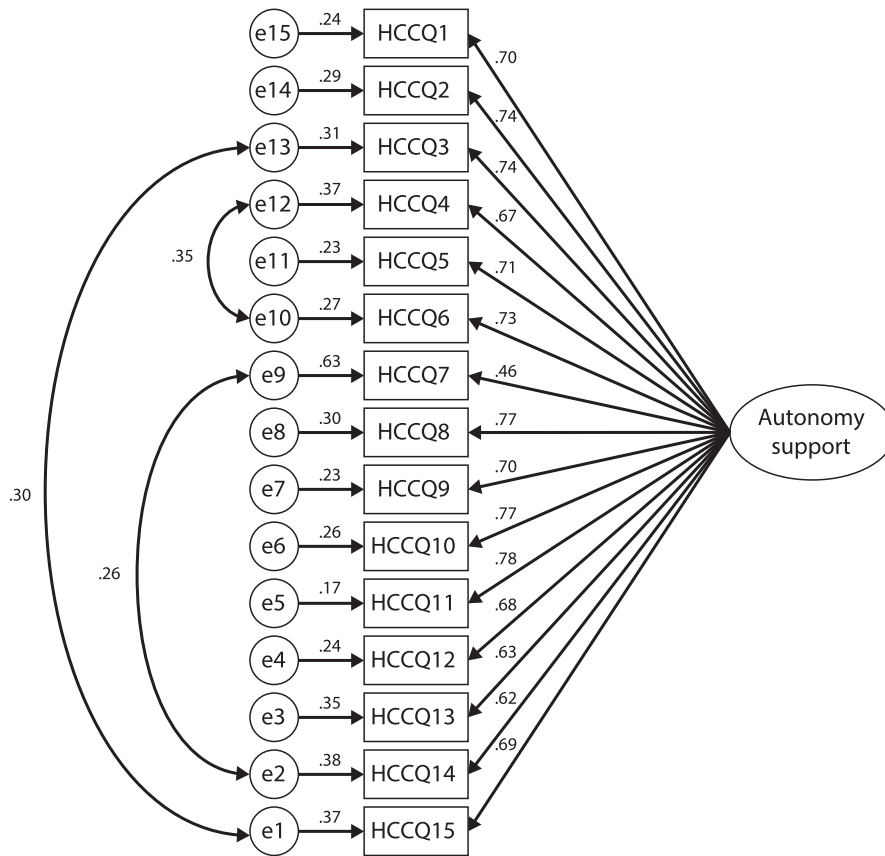
The results of the CFA showed an adequate model fit: normed chi-square =  $190.53/90 = 2.12$ , RMSEA = 0.08 [90% confidence interval 0.06–0.09], CFI = 0.93, SRMR = 0.05. However, the "detection of misspecification" output (Saris et al., 2009) indicated that there were three misspecifications within the model: between items 3 and 15, between items 4 and 6, and between items 7 and 14 (supplementary details on misspecification analyses can be obtained through <<https://drive.google.com/open?id=0B83IW-MpfH-GAWXhvdGZTQmhJbUE>>). The MI between items 4 and 6 (MI = 19.6) influenced the model fit the most, and therefore a parameter was added between those items. As a result, the model fit increased (normed chi-square = 1.91, RMSEA = 0.07, CFI = 0.95, SRMR = 0.05); however, examination of modification indexes showed two relevant misspecifications: between items 3 and 15, and between items 7 and 14. As the MI between items 3 and 15 (MI = 15.2) influenced the model fit the most, a parameter was added between those items. Consequently, the model fit improved (normed chi-square = 1.75, RMSEA = 0.06, CFI = 0.96, SRMR = 0.05). This model had one more misspecification, between items 7 and 14. Adding a parameter between these items resulted into a good model fit without misspecifications (see Figure 1 for a visual representation of the adopted model): normed chi-square =  $142.58/87 = 1.64$ , RMSEA = 0.06 [90% confidence interval 0.04–0.08], CFI = 0.96, SRMR = 0.04.

Local fit inspection showed that all factor loadings were significant at a  $p < 0.001$  level and of the expected sign, varying between 0.46 and 0.78.

#### 3.3 | Reliability

The reliability of the HCCQ-ID was determined by computing Cronbach's alpha and was found to be 0.93. In addition, the 2-week

<sup>1</sup>When comparing the scores for both people with mild intellectual disability ( $M = 4.04$ ,  $SD = 0.54$ ) and people with borderline intellectual functioning ( $M = 3.96$ ,  $SD = .57$ ), there was no statistically significant difference between both groups,  $t(183) = 0.94, p = .35$ .



**FIGURE 1** Visual representation of the Health Care Climate Questionnaire-Intellectual Disability (HCCQ-ID) among 185 people with mild-to-borderline intellectual disability. Note. Numbers to the left of the rectangles represent residuals (expressed as covariance). Numbers between the single-arrow lines connecting the construct autonomy support and the items indicate a hypothesized direct effect (expressed as standardized regression coefficients). The numbers between the bidirectional arrows connecting the errors terms are expressed as correlations

test-retest reliability was determined by re-interviewing 40 participants (21.6%) and was assessed by computing a Pearson correlation between the two measurements. The 2-week test-retest reliability ( $M = 14.6$  days,  $SD = 2.0$ , range = 11.0–21.0) of the HCCQ-ID was  $r = .85, p < 0.001$ .

#### 4 | DISCUSSION

Findings support the factor structure and reliability of the Health Care Climate Questionnaire-Intellectual Disability (HCCQ-ID) for people with mild-to-borderline intellectual disability. Similar to the results of the original HCCQ (Williams et al., 1996), the findings supported a one-factor structure of the HCCQ-ID. Moreover, the current study found good internal consistency and test-retest reliability.

In common with most other studies, this study revealed high HCCQ-ID mean scores, yielding a distribution skewed to the right for both people with mild intellectual disability and people with borderline intellectual functioning. The first validation study of the HCCQ showed a mean score of 4.43 (Williams et al., 1996), Jochems, Mulder, Duivenvoorden, van der Feltz-Cornelis, and van Dam (2014) reported a mean score of 4.22 in a sample of 348 Dutch adult outpatients, and Schmidt et al. (2012) found a mean score 3.93 in 351 German general practice patients. Although the current study did not indicate a ceiling effect based on the percentages of participants reporting the highest possible scores (the average percentage participants rated maximum on an item was 26.0%, range: 8.6%–49.2%), high

average scores indicate most participants were satisfied to very satisfied regarding the support that their support staff provides for their autonomy. Participants in the present study might be truly satisfied with the experienced autonomy support, although the results might also be explained by the reluctance of people with mild-to-borderline intellectual disability to criticize their support staff because of their dependent, and sometimes long-standing, relationship. Despite this, by creating a trustworthy and pleasant environment and by avoiding judgemental statements, the authors tried to limit the expression of social desirability of the participants.

The results should be interpreted in the light of the limitations of the study. Firstly, no demographics are available of the 165 individuals who declined the invitation to participate in this study. In addition, no professionals with specific expertise in communication (e.g., speech and language therapists) were included in the adaptation process and the number of individuals with intellectual disability reviewing the HCCQ-ID prior to its actual usage could have been higher. Moreover, the cross-sectional design of the study and the small number of participants for the test-retest reliability are limitations. Stronger tests of convergent validity are required using observational material. Furthermore, replicating the study of Emond Pelletier and Joussemet while adding the HCCQ-ID to measure the perceived autonomy support of people with intellectual disability would be important for future research. Finally, it may not be appropriate to use norms regarding people with mild intellectual disability, based on the HCCQ-ID scores from both people with mild intellectual disability and borderline intellectual functioning. This is

especially the case as research presented several significant differences between people with mild intellectual disability and people with borderline intellectual functioning (Nouwens, Lucas, Embregts, & van Nieuwenhuizen, 2017). It would be interesting to distinguish between people with mild intellectual disability and borderline intellectual functioning regarding the factor analysis. However, both sample sizes in the current study ( $n = 109$  for people with intellectual disability and  $n = 76$  for people with borderline intellectual functioning) are too small to conduct factor analysis for both groups separately. Future research using a larger number of participants for both subgroups is needed.

Overall, the results of the present study provide initial support for the factor structure and the reliability of the HCCQ-ID in a population of people with mild-to-borderline intellectual disability. This is an important first step in assessing the crucial role of autonomy supportive environments among people with intellectual disability. Given the homogeneous factor structure and the high internal consistency score ( $\alpha = 0.93$ ), the number of items may be further optimized in future research. The Spearman–Brown prophecy formula revealed that reducing the total number of items from 15 to 5 would maintain an adequate internal consistency of 0.81.

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## CONFLICT OF INTEREST

All authors declare that they have no conflict of interest.

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