

Nurses' interaction styles when supporting patients in self-management: A profile approach

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ARTICLE INFO

Article history:

Received 5 October 2019

Received in revised form 27 March 2020

Accepted 4 April 2020

KEYWORDS:

Counselling

Latent profile analysis

Nursing

Patient-centred care

Patient participation

Self-Determination Theory

Self-management

ABSTRACT

Background: The rising attention to participation and self-regulation in chronic care requires nurses to move towards an approach in which patients' perspectives and choices are central, and in which patients' competency is fostered. According to Self-Determination Theory, nurses can differ in the way they interact with patients living with a chronic illness. That is, they can interact in an autonomy-supportive, controlling, structuring or chaotic way. However, in practice, nurses often use these styles side by side depending on personal and situational demands.

Objective: Rooted in Self-Determination Theory, this study sought to identify distinct profiles among nurses involving the co-occurrence of autonomy support, structure, control and chaos (aim 1), and to examine whether such profiles are meaningfully driven by nurse-related indicators (aim 2).

Design: A cross-sectional design with latent profile analysis.

Methods: Data were collected using validated self-report questionnaires among nurses counselling chronically ill patients ($N = 389$). Latent profile analysis was performed to shed light on how nurses use different styles side by side; and subsequent MANCOVA testing was used to examine differences between the profiles in terms of nurse-related indicators.

Results: Four profiles could be identified, each characterised by a unique combination of differing degrees of autonomy support, structure, control and chaos. The profiles included a *motivating profile* (20.31%) characterised by the dominant presence of autonomy support and structure; a *demotivating chaotic profile* (17.74%) characterised by the dominant presence of chaos; an *active profile* (24.17%) where all styles were highly present; and an *undifferentiated profile* (37.79%) characterised by an average presence of all styles. These four profiles were meaningfully related to a set of nurse-related indicators. Multivariate analysis (Pillai's Trace test = .38, $F(15, 756) = 7.28$; $p < .001$; $\eta^2 = .13$) indicated that job competency, job autonomy and high-quality motivation were most elevated in the *motivating profile*.

Conclusion: Profiling has supported our understanding of the natural co-occurrence of more motivating and demotivating styles among nurses when counselling patients in self-managing their life with chronic illness. The pattern of retained profiles indicates that, for some nurses, it will be important to move away from controlling or chaotic interactions. Future intervention development should augment nurses' competence levels and high-quality motivation, with attention to reduce the pressure in nurses to act in a result-based manner. Profiling can also be valuable to better assign nurses to an employment in chronic care, and to support their personal professional growth.

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What is already known about the topic?

- Nurses can interact in a rather autonomy-supportive, structuring, controlling, or chaotic way with patients living with a chronic illness.
- According to Self-Determination Theory, autonomy support and structure foster adaptive health behaviour outcomes in chronic illness care.
- No prior attention has been given to the natural co-occurrence of these styles among nurses when supporting patients in self-management.

What this paper adds

- Profile analysis identified motivating, demotivating chaotic, active, and undifferentiated profiles among nurses.
- The less optimal profiles indicated that some nurses need guidance to actively move away from controlling and chaotic interactions
- High-quality motivation, feelings of competence and an adaptive work context are conducive to a more motivating profile among nurses.

1. Introduction

Over the past decade, particular attention has been given to empowerment, participation, and self-regulation in the care for people living with a chronic illness. The Chronic Care Model (Wagner et al., 2001), one of the leading models in chronic care, recognises this tendency and states that self-management support is a core element in the organisation of chronic care. Although no generally accepted definition exists, self-management implies the individual right to self-determination, partnership in care, shared decision making, and mutual respect and understanding between the patient and the professional (van Staa et al., 2018). A recent definition of health also stresses the tendency towards active involvement of patients, as it defines health as 'the ability to adapt and self-manage, in light of the physical, emotional and social challenges of life' (Huber et al., 2011).

This global tendency towards active involvement of patients in their chronic condition management implies that patients' perspectives and choices are central during the patient-professional encounter. However, this might be challenging in the nursing profession which has been dominated for decades by the expert model and a paternalistic approach (Coulter, 1999). Current evidence still indicates this dominance in nursing care (Angel & Frederiksen, 2015), and it is also seen in the field of self-management support where shared decision making and agency are barely present in the patient-nurse encounter (Duprez et al., 2018; Franklin et al., 2018). The encounter thereby might impede patients' autonomy in making decisions related to their life with the illness and their motivation to manage the chronic condition. A suitable framework to investigate whether self-regulation and ownership are provided to patients living with a chronic condition, is Self-Determination Theory (Ryan & Deci, 2000; 2017). Central to Self-Determination Theory are three psychological needs, namely, the need for autonomy, for competency, and for relatedness (Ryan & Deci, 2000; Vansteenkiste et al., 2020). People whose needs are fulfilled become engaged and pro-active, whereas the frustration of these needs leaves people prone to passivity or defensive functioning (Vansteenkiste & Ryan, 2013). Such need fulfilment is indicative of an interpersonal climate that involves the provision of choice and the fostering of ownership, while at the same time minimizing pressure and judgement (Ryan & Deci, 2017), which should resemble the practice of self-management support.

2. Background

According to Self-Determination Theory (Ryan & Deci, 2000), people who find themselves in a motivating role towards others (e.g., health professionals, teachers or sport coaches), can differ in the style they use to motivate others such as patients (e.g., Williams et al., 2009; Williams et al., 2016), pupils (e.g., Reeve et al., 2016), or athletes (e.g., Haerens et al., 2018). For the case of self-management support, four interaction styles - grounded in Self-Determination Theory - have been distinguished (Duprez et al., 2019): autonomy support (motivating and non-directive), structure (motivating and directive), control (demotivating and directive), and chaos (demotivating and non-directive).

Nurses with an *autonomy-supportive interaction style* hold a positive belief in patients' natural tendency for growth and development (Vansteenkiste & Ryan, 2013). They display an open, curious, and respectful attitude, thereby exploring patients' perspectives, interests and needs (Mouratidis et al., 2010; Vansteenkiste & Soenens, 2015). Furthermore, when autonomy-supportive, nurses provide choices and meaningful rationales when choices are constrained. They use inviting language, and are responsive to expressed emotions (Kayser et al., 2014; Ng et al., 2012). In contrast, nurses with a predominantly *controlling style*, adopt their own agenda and priorities as a frame of reference. They set out goals for, but not with patients. When controlling, nurses use more pressuring, forceful, or even blaming language. They highlight patients' obligations without providing a meaningful rationale, and they engage in minimal dialogue (Mouratidis et al., 2010).

In addition to supporting autonomy, it is equally important to foster patients' feelings of competence in mastering their life with chronic illness by providing *structure* (Grolnick et al., 2014). In doing so, nurses communicate clear expectations, instructions and goals, which are adapted to patients' abilities. They provide tailored guidance along patients' road to goal attainment. Nurses who use a structuring approach also provide constructive feedback which focusses on the process and progress, and stimulate self-reflection (Farkas & Grolnick, 2010; Vansteenkiste & Soenens, 2015). In contrast, nurses might fail to support patients' feeling of self-efficacy by employing an interaction style that is characterized by *chaos* (Grolnick et al., 2014). Nurses with a predominantly chaotic interaction style seldom express expectations, are slightly or non-responsive to patients' needs, and do not express their trust in patients' capabilities. Feedback is provided very little or is formulated in an inappropriate way (Grolnick et al., 2014). In this way, nurses might elicit uncertainty and doubt in some patients, thereby leaving them alone in dealing with their illness.

Evidence demonstrated the benefits of healthcare professionals' autonomy support in, for example quality of life (Ng et al., 2012), diabetes regulation (Raaijmakers et al., 2014), and medication adherence (Williams et al., 1998). Although studied to a far less extent, the benefits of structure in patients' adaptive functioning are demonstrated in, for example, smoking cessation (Williams et al., 2009; Williams et al., 2016). A rather controlling style of healthcare professionals yielded negative health outcomes (Ng et al., 2012). Given these benefits of autonomy support and structure, and the disadvantages of a controlling style, it seems important to explore which interaction styles nurses use in their encounters with patients living with a chronic illness.

Yet, in practice, it is expected that nurses do not rely on one style exclusively, but often use these styles side by side depending on personal or situational demands. The circumplex approach used in Self-Determination Theory-based research on interaction styles in the fields of education (Aelterman et al., 2019), sports coaching (Delrue et al., 2019; Haerens et al., 2018), and nursing (Duprez et al., 2019) indicates that these (de)motivating styles

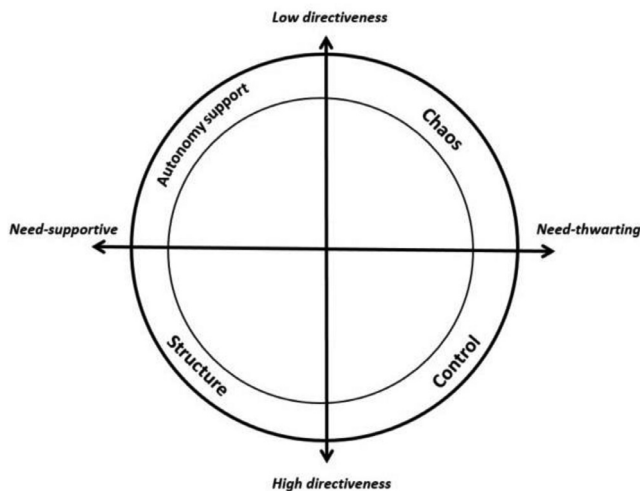


Fig. 1. Circumplex model of the interaction styles (based on Aelterman et al., 2019)

are not categorical, but warrant a more gradual approach (Fig. 1; Vansteenkiste et al., 2019). No prior attention has been given to the co-occurrence of these interaction styles among nurses when supporting patients in self-managing their life with chronic illness. Interestingly, profiles of nurses might exist which are characterised by a different co-occurrence of interaction styles. Identifying such profiles involving a specific patterning or configuration of autonomy support, structure, control, and chaos can be best studied through a person-centred profile analysis (Nylund-Gibson & Choi, 2018). From an applied perspective, it is interesting to know whether optimal or suboptimal profiles among nurses exist, which is valuable for future intervention development or for better assigning nurses to an employment in chronic care. From a theoretical perspective, it is expected that we would find at least two groups of nurses characterised by opposite profiles of high motivating and high demotivating styles (Duprez et al., 2019). Additionally, it is of interest to gain insight on the factors that explain differences between the retained profiles. Evidence indicates that nurse-related factors such as motivation (Kosmala-Anderson et al., 2010), confidence (Van Hooft et al., 2016), attitude (Borrelli et al., 2008), and knowledge (Van Hooft et al., 2016) lead to more or less provision of self-management support; however, such evidence is not available for the way nurses interact with patients. In sum, this study sought to identify distinct profiles among nurses involving the co-occurrence of four styles, namely autonomy support, structure, control, and chaos (aim 1), and to examine whether such profiles are meaningfully driven by nurse-related indicators (aim 2).

3. Method

3.1. Study design

A cross-sectional design with latent profile analysis was employed.

3.2. Participants and procedure

This study made use of a convenience sample of nurses in Flanders (Belgium). Eligibility criteria were as follows: (1) patient caseload with at least 50% of the patients living with a chronic condition and (2) at least one year of work experience in nursing care. Nurses were recruited from a professional association of advanced practice nurses, and from medical wards (e.g. nephrology,

cardiology, and endocrinology) in five general hospitals. Nurses combining their employment with an additional Master of Science in Nursing program were also recruited. We used a total sample approach, whereby 745 nurses were invited to participate. To date, recommendations on the required sample size for latent profile analysis range between 300 and 1000 (Nylund-Gibson & Choi, 2018). Decisions on sample size should consider both the possibility of detecting rare profiles, which requires an overall sufficient sample size, and the possibility of differentiating profiles well, which requires well-defined constructs that drive the profiles. A sample size of 400 was aimed for.

All participants completed questionnaires between November 2016 and May 2017. Participation was voluntary and anonymous. The participants gave their written consent before completion. The study was approved by the Ethical Review Committee of Ghent University Hospital and the local committees of the participating hospitals (B670201526717).

4. Profile indicators

We forwarded five nurse-related profile indicators which are rooted in Self-Determination Theory. Work-related need satisfaction is a driving force for employees' optimal functioning (Deci et al., 2017). Nurses who felt competent and who perceived job autonomy to engage in the practice of self-management support were more motivated (Kosmala-Anderson et al., 2010) and were more engaged in the provision of such support (Duprez et al., 2018). Therefore, we included job competency (indicator 1) and job autonomy (indicator 2) as profile indicators. We anticipated that the satisfaction of these needs would be most evidenced in a profile that uses motivating styles. Furthermore, Self-Determination Theory stipulates that the way professionals motivate others is affected by their own motivation (Deci et al., 2017). Thus, three distinct types of motivation were studied as profile indicators. We anticipated that highly volitional motivated and committed nurses (*autonomous motivation*, indicator 3) would be most represented in a profile that reflects the use of motivating styles. Nurses driven by external pressure to avoid criticism or to fulfil expectations from others (*external motivation*, indicator 4) would be most represented in a profile with demotivating styles. In addition, a complete disinterest (*amotivation*, indicator 5) would be indicative of a profile high on a chaotic style (Ryan & Deci, 2017).

5. Measures

Interaction styles for self-management support. Data on nurses' interaction styles while supporting patients in self-management were collected by means of the Situations in Self-management support – HealthCare Professionals (SIS-HCP) tool (Duprez et al., 2019). This vignette-based, self-report tool distinguishes four Self-Determination Theory-derived interaction styles, namely autonomy-support, structure, control, and chaos. Multi-dimensional scaling analysis indicated an underlying two-dimensional solution between the four styles, with the axes representing motivating relative to demotivating counselling, and high relative to low directive counselling (Duprez et al., 2019). As described by Duprez et al. (2019), autonomy support is situated in the motivating and non-directive quadrant, structure in the motivating and directive quadrant, control in the demotivating and directive quadrant, and chaos in the demotivating and non-directive quadrant (see also Fig. 1). The psychometric evaluation of the SIS-HCP indicated an ecological valid tool with good convergent validity, an internal consistency ranging between .73 and .85 for the four styles, and a test-retest reliability between .77 and .87 (Duprez et al., 2019). In the current sample, Cronbach's alphas ranged between .73 and .84. Respondents read a vignette

and rated each response option on a six-point Likert scale from 'describes me not at all' (0) to 'describes me entirely' (5), to indicate the extent to which the response options represented their own practice. For example: 'A patient that received treatment for several years, leaves a listless impression: I listen to the concerns the patient has at that time and try to understand these as good as possible (autonomy-support); I give the patient hints to recover from these rough times (structure); I tell the patient that it is time to get things together and go for it again (control); I say that other patients also go through a difficult period sometimes (chaos)'. For each style, an average was obtained. Higher scores represent a higher presence of that particular style (range 0 to 5).

Profile indicators were all measured by self-assessment tools. The Basic Need Satisfaction and Need Frustration (BNSNF) scale, Dutch version (Chen et al., 2015), was used to measure the satisfaction of job-related competence and autonomy. The internal consistency was .81 and $\alpha = .69$, respectively, for the original competence and autonomy satisfaction scale, and $\alpha = .70$ and $\alpha = .66$, respectively, in the current sample. The Dutch professionals' motives for self-management support (PROMOTES) scale (Van Hecke et al., under review) was used to measure motivation to provide self-management support. The PROMOTES scale, grounded in Self-Determination Theory, reflects different types of rather high quality, low quality or absence of motivation. The internal consistency of the original scale was .79, .76, and .85 for the herein used subscales autonomous motivation, external motivation, and amotivation, respectively. In the current sample, the internal consistency was .84, .77, and .84, respectively.

6. Data analysis

Prior to performing the analysis, questionnaires with incomplete data ($N=2$) or erroneous values ($N=1$) were removed. Furthermore, questionnaires with a repetitive response patterns were removed ($N=1$) since these might indicate a haphazard completion of the questionnaire, that is, with a response in the same answering category on 38 of the 40 items of the SIS-HCP.

This study made use of a latent profile analysis (LPA) using MPlus 7.4. Latent profile analysis is a statistical method used to identify unobserved subgroups in a population with respect to a given phenomenon, herein the combined use of four interaction styles (i.e., autonomy support, structure, control, and chaos) among nurses during chronic care contacts (research aim 1). Profile analysis is a way to group similar people together, whereas factor analysis groups items (Nylund-Gibson & Choi, 2018). The groups in LPA are unobserved (latent) and are based on the individuals' set of responses. Different solutions were tested, from a one-profile to an eight-profile solutions (5000 initial random starts, 100 iterations, and 500 optimisations). As recommended by Nylund-Gibson (2018) fit indices guided the decision on the number of profiles. We used five fit indices to evaluate the model fit: Akaike Information Criteria (AIC), Bayesian Information Criteria (BIC), sample-size adjusted BIC (aBIC), parametric Bootstrapped Likelihood Ratio Test (BLRT), and the entropy. A good model fit is indicated by low values for AIC, BIC, and aBIC, and an entropy above .70, and a significant BLRT (Nylund-Gibson & Choi, 2018; Wang et al., 2017). We used the robust maximum likelihood (MLR) estimator to control for outliers or homoscedastic distribution. In addition to these fit indices, and of equal importance, the selection of the optimal number of profiles was based on theoretical and clinical relevance and distinctiveness of the retrieved profiles, as well as on a sufficient number of cases to obtain feasible profiles (Marsh et al., 2009).

Next, differences between the profiles in terms of nurse-related indicators were examined (research aim 2). MANCOVA testing was performed, using SPSS© 24 (SPSS Inc. Chicago, IL, USA), to test

the significance of differences of the retrieved profiles for multiple independent variables (i.e. the five nurse-related indicators). All five theoretically derived profile indicators were included simultaneously in the MANCOVA. Since we controlled for possible confounding factors, a multivariate analysis of covariance was used. Background characteristics with a significant difference in interaction styles were entered as covariates. Subsequent ANCOVA testing, with Bonferroni post-hoc tests, was performed to gain detailed insights in the differences between the retrieved profiles. A more conservative alpha level ($\alpha = < .0125$) is recommended to avoid type I errors.

7. Results

7.1. Sample characteristics

In total, 389 nurses participated in the study (response rate 52.21%). The participants were mostly female (85.3%), bachelor-educated (62.5%) and had less than five years of work experience (28.3%) or more than 20 years of work experience (23.1%), and one-quarter provided one-on-one patient consultations (25.7%). Table 1 gives an overview of the participants' demographic characteristics.

7.2. Descriptive statistics

To obtain an initial understanding of the study variables, the means, standard deviations, and correlations are displayed in

Table 1
Sample characteristics (N = 389).

Characteristic	N	(%)
Gender		
Female	332	85.3
Male	53	13.6
Missing	4	1.0
Age (years)		
< 23	26	6.7
23-29	118	30.3
30-39	103	26.5
40-49	83	21.3
50-59	48	12.4
≥ 60	7	1.8
Missing	4	1.0
Education		
Vocational degree *	114	29.3
Bachelor degree	243	62.5
Master degree **	26	6.7
Missing	6	1.5
Work experience (years)		
< 5	110	28.3
5-9	67	17.2
10-14	47	12.1
15-19	68	17.5
≥ 20	90	23.1
Missing	7	1.8
One-on-one patient consultations		
Yes	100	25.7
No	281	72.2
Missing	8	2.1
Case mix of patients living with (multiple answers)		
Diabetes	184	27.7
Chronic pulmonary diseases	97	14.6
Oncology	91	13.7
Chronic heart diseases	86	13.0
Chronic renal diseases	78	11.8
Chronic vascular diseases	77	11.6
Rheumatologic diseases	7	1.1
Others	43	6.5

* A three year nurse training at qualification level 5 of the European Higher Education Area;

** Academic Master of Science degree.

Table 2
Descriptives and correlations of the interaction styles.

Variable	Mean [†]	SD	Autonomy- support	Structure	Control
Autonomy support	3.76	0.56	-		
Structure	3.59	0.69	.71***	-	
Control	1.87	0.85	-.01	.26***	-
Chaos	1.64	0.72	-.13*	-.21**	.50***

[†] Range 0-5; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 2. The interaction styles had a possible range of 0 to 5, with an average of 3.76 ($SD = .56$) for autonomy support; of 3.59 ($SD = .69$) for structure; of 1.87 ($SD = .85$) for control; and of 1.64 ($SD = .72$) for chaos. Correlations of the interaction styles were strong between autonomy support and structure ($r = .71$; $p < .001$), and moderate between control and chaos ($r = .50$; $p < .001$). Correlations were weakly negatively between chaos and autonomy support ($r = -.13$; $p < .05$), and between chaos and structure ($r = -.21$; $p < .01$).

Results also indicated that several background characteristics were related to the interaction styles. *Autonomy support* revealed a significant difference in gender, age, and educational level. Female nurses made more use of autonomy support ($t = 2.84$; $df = 383$; $p < .01$). Nurses in the 23-29 age group used less autonomy support than their older colleagues (all age groups above 40 years, $F = 3.48$; $df = 5$; $p < .01$). Vocational nurses used less autonomy support than bachelor-educated and master-educated nurses ($F = 5.87$; $df = 2$; $p = .0013$). *Structure* revealed significant difference in age and work experience. Older ($F = 5.45$; $df = 5$; $p < .001$) and more experienced ($F = 3.35$; $df = 4$; $p = .01$) nurses used more structuring approaches. *Control* revealed a significant difference in age, work experience, and educational level. Nurses above 50 years used more control than their younger colleagues ($F = 4.53$; $df = 5$; $p = .001$). Similarly, nurses with more than 20 years of work experience used more control than their less experienced colleagues ($F = 6.79$; $df = 4$; $p < .001$). Vocational nurses used more control than bachelor-educated and master-educated nurses ($F = 5.33$; $df = 2$; $p < .01$). A *chaotic way* of interaction was reported more by emotionally exhausted nurses ($p < .01$). Accordingly, all significantly related background variables were controlled for in the profile testing, and were included as covariates in the subsequent analysis.

7.3. Profiles of interaction styles

We fitted a series of LPA models beginning with a one-profile model until reaching an eight-profile model. The fit indices of these one- to eight-profile solutions are summarised in Supplementary File S1. The fit indices indicated profile optimisation until the six-profile solution, with only marginal gains from the four- to six-profile solutions. In the two- and three-profile solutions, the distinction between profiles was limited compared to the four-profile solutions. From the five-profile solution onwards, profiles were identified characterising less than 5% of all cases (Table 3). These small groups lacked distinctiveness in their profiles and were of limited clinical relevance. Based on all considerations, we retained the four-profile solution as the best interpretable solution with good fitting.

The descriptive statistics of the four profiles are presented in Table 3, with raw and standardised scores for each style within the profiles and the percentage of variance explained for each profile. Fig. 2 presents the four profiles based on the z-scores (left half) and on the absolute scores (right half) for each interaction style. *Profile 1* consisted of 17.74% of the sample ($N = 69$) and was characterised by nurses who reported a high score on chaos, an average score on control, and low scores on autonomy support and structure. This profile was labelled as *demotivating chaotic*. *Profile 2* consisted of 20.31% of the sample ($N = 79$) and was characterized by nurses who reported scores high on autonomy support and structure, and low on control and chaos. This profile was labelled as *motivating*. *Profile 3* consisted of 24.17% of the sample ($N = 94$) and was characterised by nurses who reported a high score on all interaction styles, most pronounced for control and chaos. This profile was labelled as *active*. *Profile 4* consisted of 37.79% of the sample ($N = 147$) and was characterised by nurses who reported an

Table 3
Proportions and mean differences between the profile indicators (raw and z-scored).

Distribution of profiles	Demotivating / chaotic profile N = 69 (17.74%)	Motivating profile N = 79 (20.31%)	Active profile N = 94 (24.17%)	Undifferentiated Profile N = 147 (37.79%)	F	R ²
Profile means (raw scores; range 0-5)						
Autonomy support	3.03 _a	4.33 _b	4.13 _c	3.55 _d	274.44***	68.1%
Structure	2.67 _a	4.20 _b	3.99 _c	3.44 _d	202.85***	61.3%
Control	1.93 _a	1.39 _b	2.62 _c	1.62 _b	52.81***	29.2%
Chaos	2.62 _a	0.87 _b	2.30 _a	1.38 _c	177.76***	58.1%
Profile means (z-scores)						
Autonomy support	-1.30 _a	1.02 _b	0.66 _c	-0.38 _d	274.44***	68.1%
Structure	-1.33 _a	0.88 _b	0.58 _c	-0.22 _d	202.85***	61.3%
Control	0.07 _a	-0.56 _b	0.88 _c	-0.29 _b	52.81***	29.2%
Chaos	1.36 _a	-1.07 _b	0.92 _a	-0.36 _c	177.76***	58.1%
Nurses' indicators (ANCOVA)						
Job competency	2.63 _a	3.22 _b	2.94 _{b,c}	2.84 _{a,c}	12.17***	21.0%
Job autonomy	2.32 _a	2.95 _b	2.72 _{b,c}	2.58 _{a,c}	12.16***	19.6%
Autonomous motivation	3.14 _a	3.71 _b	3.68 _b	3.36 _c	23.62***	23.9%
External motivation	1.41 _a	0.84 _b	1.55 _a	1.30 _{a,b}	6.10***	6.9%
A-motivation	0.94 _a	0.11 _b	0.38 _b	0.49 _b	11.94***	16.6%

Means with different subscript have significantly different means between the profiles, with an adjusted level of $\alpha < .0125$.

*** $p < .001$.

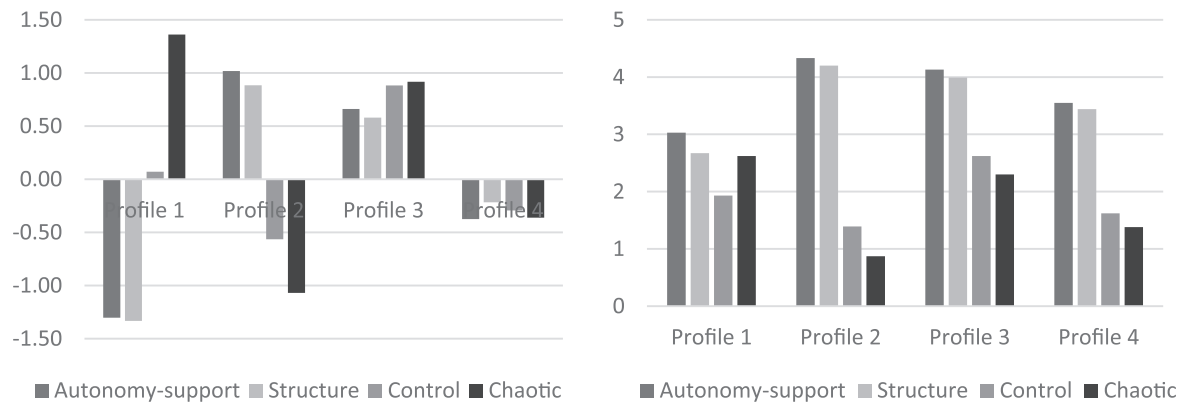


Fig. 2. Z-scores (left half) and absolute scores (right half) of styles within the four-profile solution.

Note The means are standardized (z-scored) to help the interpretation of the differences between the profiles. Profile 1 = demotivating chaotic profile; profile 2 = motivating profile; profile 3 = active profile; profile 4 = undifferentiated profile.

average score on all interaction styles. This profile was labelled as *undifferentiated*.

7.4. Indicators of the profiles

Next, we investigated whether nurses classified into a specific profile also differed in terms of nurse-related indicators. The MANCOVA testing, with the profiles considered as dependent variables and job competency, job autonomy, autonomous motivation, external motivation, and amotivation as independent variables, indicated significant multivariate differences (Pillai's Trace test = .38, $F(15, 756) = 7.28$; $p < .001$; $\eta^2 = .13$). This means that nurses in the distinct profiles differed on the combined set of nurse-related indicators. Subsequent post-hoc comparison (see Table 3) indicated that nurses in the *motivating profile* (profile 2) reported the highest scores on the positive indicators and the lowest scores on the negative indicators. These nurses were highly autonomously motivated to support patients in self-management and were almost not driven by external motivation or amotivation. These nurses also felt highly competent and experienced high levels of job autonomy. In contrast, nurses in the *demotivating chaotic profile* reported the lowest scores on the positive indicators and the highest on the negative indicators. These nurses reported the poorest levels of job competency and job autonomy (although comparable to nurses in the undifferentiated profile), and they reported high levels of amotivation and external motivation. In between the aforementioned profiles, nurses in the *active and undifferentiated profiles* differed only significantly in their level of autonomous motivation, with nurses in the *active profile* being more autonomously motivated. Nurses in the *demotivating chaotic and undifferentiated profiles* reported limited levels of competency. Furthermore, nurses in the *active profile* displayed a mixed pattern of high-quality (autonomous) and low-quality (external) motivation. Nurses in the *active and undifferentiated profiles* were equally externally motivated, although nurses in both these profiles were less amotivated than nurses in the *demotivating chaotic profile*.

8. Discussion

We sought to identify a set of naturally occurring distinct profiles, characterised by a different configuration of autonomy support, structure, control, and chaos among nurses employed in chronic care. The person-centred approach, using a latent profile analysis, allowed us to identify groups of nurses who combine

these interaction styles in a similar way. Our results indicated that four profiles could be identified, each characterised by a unique combination of interacting through autonomy support, structure, control, and chaos.

One profile was characterised by the simultaneous provision of high autonomy support and structure, and low control and chaos, and thereby represented an optimal profile (Mouratidis et al., 2010; Duprez et al., 2019). Nurses in this *motivating profile* engage with patients in a way that expresses genuine interest, makes patients feel heard and cared for, gives patients a voice in decision making, and provides meaningful rationales to patients (*i.e.* being autonomy-supportive). This, in turn, fosters patients' feelings of autonomy in living with their illness (Ng et al., 2012). Nurses within this motivating profile not only are autonomy-supportive, but also provide structure by setting out expectations, offering clear and patient-aligned guidance, and providing meaningful feedback, which all might be conducive to patients' feelings of competence to live well with their illness.

Another profile was characterised by the occurrence of high levels of chaos, an average level of control, and rather low levels of autonomy support and structure. Nurses in this *demotivating chaotic profile* communicate expectations, information, and instructions to a limited extent or in a more confusing way. Nurses in this profile have a low-directive way of interacting with patients and might thereby leave some patients in uncertainty or confusion on how to deal with the illness. This profile might therefore also be labelled as a rather *laissez-faire* approach (Duprez et al., 2019; Grolnick et al., 2014). It might reflect a misinterpretation of the word 'self' in self-management which transfers all responsibility to the patient and thereby disregards the collaborative partnership and the mutual responsibility between the patient and the healthcare professional (van Staa et al., 2018).

The next profile was characterised by the occurrence of average scores on all styles. Nurses in this average profile, labelled as *undifferentiated profile*, are unpronounced in the provision of autonomy support, structure, control, and chaos. This might indicate that nurses fluctuated in the way they supported patients in self-management, and maybe provided self-management support in an inconsistent way, as observed in the study by Westland and colleagues (2018). It might also indicate that nurses feel uncertain about how to interact while supporting patients in self-management, as indicated by the relatively low levels of confidence among Flemish nurses and graduating nurses in providing self-management support (Duprez et al., 2017; Duprez et al., 2018). Up to 38% of the nurses in our study were sorted under this profile, reflecting the challenge many professionals experience to provide

self-management support in a tailored and truly person-centred way (Franklin et al., 2018; Lawn et al., 2017).

Finally, one profile was characterised by the simultaneous occurrence of high levels of all styles. Nurses in this *active profile* seem to monitor patients very closely and use all kinds of strategies, combining more motivating and more demotivating ones. We chose not to label this profile as a truly negative profile (for example, demotivating) since it was characterised by high levels of autonomy support and structure (Fig. 2). This *active profile* might reflect the difficulty of finding a balance between encouragement and taking over (Jones et al., 2013). Evidence from a qualitative study approach indicated that nurses want to see change in the patient's behaviour and want to see an evolution towards the expected behaviour (Dwarswaard & van de Bovenkamp, 2015; Duprez et al., 2020), and therefore some nurses rely on the exertion of control (Mudge et al., 2015).

The second aim of this study was to examine whether these profiles have meaningful nurse-related indicators, which might provide keys to help nurses move towards a motivating profile when supporting patients in self-management. Such a motivating approach reflects the combination of autonomy support and structure (Duprez et al., 2019). Nurses in the *motivating profile* and *demotivating-chaotic profile* had the most distinctive indicators. Nurses in the *motivating profile* displayed the most positive pattern of indicators, followed by nurses in the *active profile*. High levels of competence and job autonomy, as well as being motivated out of interest and perceived importance, were distinct indicators to establish an interaction style characterised by autonomy support and structure. This indicates that competency may enhance the provision of self-management support (van Hooft et al., 2016), but also might lead to a more participatory and person-centred way of providing it. Interestingly, nurses in the *active profile* were additionally driven by external pressure. This felt external pressure led to the co-occurrence of controlling or pressuring approaches, the latter referring to an approach in which professionals' agenda and priorities become the goal of care (Ng et al., 2012). This external pressure might be related to perceived expectations from supervisors, doctors, or team members, who predominately still have a compliance perspective (Franklin et al., 2018). A pressuring approach might be regarded as a fast track to obtaining patient compliance, although in the long run this might not lead to self-endorsed or well-maintained behaviour among patients (Ng et al., 2012).

In complete contrast, the indicators of the *demotivating chaotic profile* demonstrated that not being interested in providing self-management support, combined with feelings of incompetency, are associated with a *laissez-faire* approach by nurses. In this case, nurses fail to pick up concerns from patients, they do not remain 'present' or explore what matters to the patient (Bart & Gryphonk, 2008). Instead, they tend to take a wait-and-see approach to see how things evolve (Aelterman et al., 2019; Grolnick et al., 2014; Teixeira et al., 2020).

8.1. Strengths and limitations

The person-centred approach of profile analysis leans close to the natural convergence of interaction styles among nurses in chronic care counselling and sheds light on how nurses use different styles side by side. However, care must be taken when drawing implications from cross-sectional and self-reported data. That is, given that we employed a cross-sectional design, no causal conclusions can be drawn. Furthermore, self-reporting is prone to social desirability bias and thereby to overestimation of positive but underestimation of negative aspects (Polit & Beck, 2017). This might have artificially inflated the strength of the associations through common-method variance (Richardson et al., 2009). Further research could use a multi-method approach (for exam-

ple self-reports and observations) and an experimental longitudinal design to shed light on how changes in indicators lead to changes in the used styles. Future research might additionally address the relation between other nurse- or job-related variables and profile membership, such as emotional exhaustion or education. Although our sample was highly reflective of the general nursing population in Flanders (Belgium) (Ausserhofer et al., 2014), care must be taken with regard to generalising the current findings given that we employed a convenience sample.

8.2. Implications for practice

Profiling has supported our understanding of the natural co-occurrence of more motivating and demotivating styles when counselling patients towards self-managing their life with chronic illness. The profiling approach is of high and practical relevance to the development of tailored interventions and to the assignment of nurses in chronic care. Using the SIS-HCP self-reporting tool, nurses get to know how the four interaction styles co-occur in their daily care behaviour. This might lead to an initial awareness on how they interact with patients. As stipulated in earlier reviews (Davies et al., 2018; Mudge et al., 2015), our findings indicate that a tailored multi-faceted training which facilitates transformative learning is needed to trigger a mind-set towards an understanding, person-centred partnership with patients. Such training should focus on how nurses value self-management support, on how competent they feel to provide self-management support (van Hooft et al., 2016; Duprez et al., 2017), and on how their work context influences their interaction styles (Davies et al., 2018) such as perceived job autonomy and perceived external pressure to perform in a specific way. Furthermore, the intervention needs to focus on acquiring skills to interact in a more autonomy-supportive and structuring way. Especially for nurses profiling themselves as active or undifferentiated, the intervention will also need to pay attention to how they can move away from controlling and chaotic interactions. Consolidating a more autonomy-supportive style asks for longitudinal interventions immersed with sufficient patient contact (Roets-Merken et al., 2016). For nurses profiling themselves as rather chaotic, it might be helpful to install reflective discussions on where their own responsibility lies and when patients' commitment comes into play. This might be helpful to emphasise the shared responsibility and partnership in self-management support (Garland-Baird & Fraser, 2018). In times of limited resources, nurses should be assigned according to their strengths. Therefore, profiling can also be valuable to better assign nurses to an employment in chronic care counselling, and to support their personal professional growth.

9. Conclusion

Four profiles were identified among nurses who provide self-management support to patients living with a chronic illness: motivating, demotivating chaotic, active, and undifferentiated profiles. Comparison of the profiles in terms of indicators led to the conclusion that job competency, job autonomy and high-quality motivation were most elevated in the preferable motivating profile. This preferable profile combines an autonomy-supportive interaction, in order to foster patients' feelings of autonomy and choice, together with providing structure, in order to foster patients' feelings of competency to handle their life with chronic illness.

AUTHOR CREDIT STATEMENT

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Funding

No external funding received.

Declaration of Competing Interest

None.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:[10.1016/j.ijnurstu.2020.103604](https://doi.org/10.1016/j.ijnurstu.2020.103604).

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