Unraveling Motivational Profiles of Health Care Professionals for Continuing Education: The Example of Pharmacists in the Netherlands

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Introduction: Continuing education (CE) can support health care professionals in maintaining and developing their knowledge and competencies. Although lack of motivation is one of the most important barriers of pharmacists' participation in CE, we know little about the quality or the quantity of motivation. We used the self-determination theory, which describes autonomous motivation (AM) as originating from within an individual and controlled motivation (CM) as originating from external factors, as a framework for this study. Our aim was to obtain insight into the quality and quantity of pharmacists' motivation for CE.

Methods: The scores of 425 pharmacists on Academic Motivation Scale were subjected to K-means cluster analysis to generate motivational profiles.

Results: We unraveled four motivational profiles: (1) good quality with high AM/low CM, (2) high quantity with high AM/high CM, (3) poor quality with low AM/high CM, and (4) low quantity with low AM/low CM. Female pharmacists, pharmacists working in a hospital pharmacy, pharmacists working for more than 10 years, and pharmacists not in training were highly represented in the good-quality profile. Pharmacists working in a community pharmacy, pharmacists working for less than 10 years, and pharmacists in training were highly represented in the high-quantity profile. Male pharmacists were more or less equally distributed over the four profiles. The highest percentage of pharmacy owners was shown in the low-quantity profile, and the highest percentage of the nonowners was shown in the good-quality profile.

Discussion: Pharmacists exhibit different motivational profiles, which are associated with their background characteristics, such as gender, ownership of business, practice setting, and current training. Motivational profiles could be used to tailor CE courses for pharmacists.

Keywords: profession-pharmacist, performance improvement continuing education, strategic issues in continuing medical education/continuing professional development, academic motivation scale, self-determination theory, motivation, lifelong learning, continuous education

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The current changes in patient care demand modification in health care services.[1–3] To meet this demand, all health care professionals face the challenge of lifelong development and maintenance of their knowledge and competencies. Among pharmacists in practice, lack of motivation is one of the important barriers for participation in continuing education (CE) and continuing professional development (CPD).[4,5] Some studies have shown that among pharmacists, intrinsic motivation (personal desire and enjoyment) in general is one of the facilitators for learning.[6,7] However, to our knowledge, little is known about the quality and quantity of motivation of pharmacists for CE/CPD.

Several studies of motivation within medical education have used *self-determination theory* (SDT), which addresses the relationship and importance of both quality and quantity of motivation.[8–10] This theory has been applied to many different contexts, such as parenting, sports and exercise, and also to educational settings (both academic and developmental domains).[11]

In SDT,[11,12] types of motivation are arrayed along a continuum and include amotivation, extrinsic motivation, and intrinsic motivation (FIG. 1). Amotivation is the state of passive behavior, in which people are unable to accomplish required outcomes. Intrinsic motivation is the most autonomous form of motivation and is driven by interest and joy in the task itself and exists within the individual. Extrinsic motivation originates from outside the individual (ie, from external factors) and is additionally characterized by four qualities of regulation:

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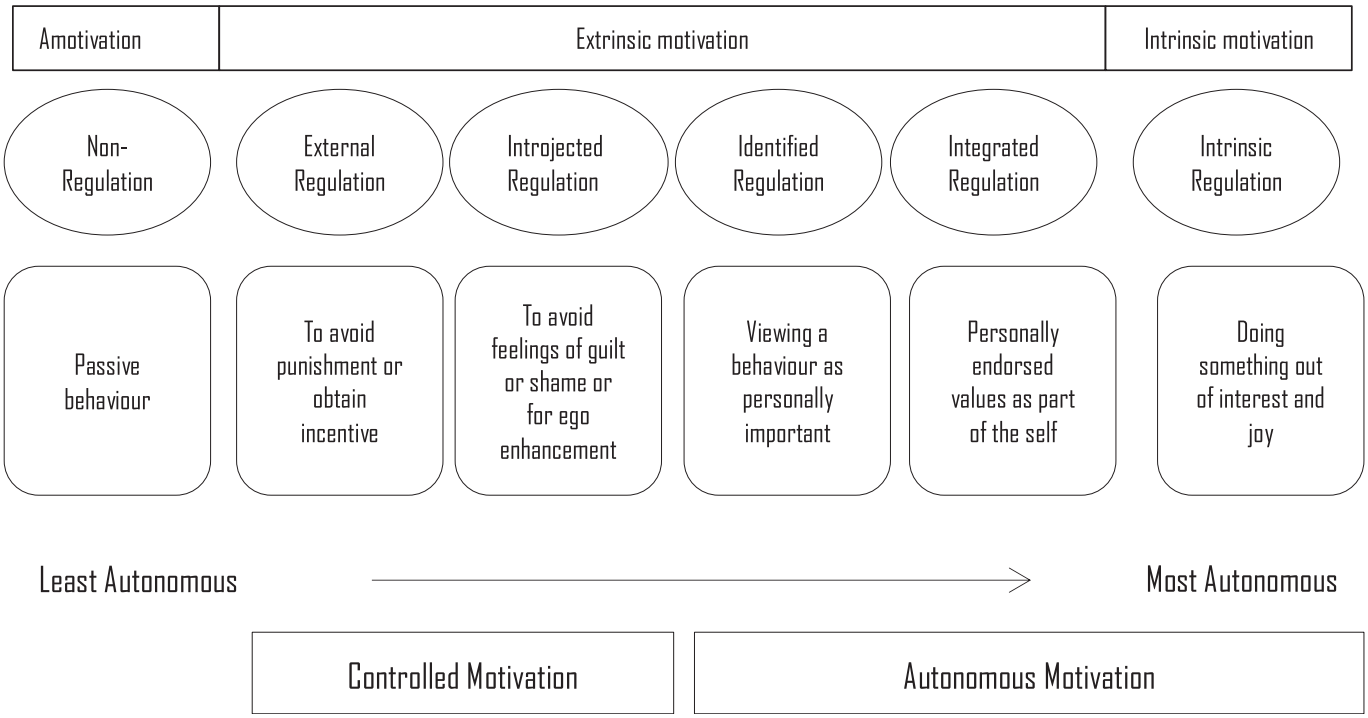

FIGURE 1. The self-determination continuum adapted from Ryan and Deci[11] and Van den Broeck et al.[12]

external regulation (not accepting a rule as valid but doing something to avoid punishment or obtain an incentive), *introjected regulation* (to avoid feelings of guilt and shame and for ego enhancement), *identified regulation* (viewing a behavior as personally important), and *integrated regulation* (behavior from personally endorsed values as part of the self). External regulation is the lowest and integrated regulation is the highest in its degree of autonomy. External regulation and introjected regulation can be combined into a single variable labeled controlled motivation (CM). Identified and integrated regulation and intrinsic motivation can be combined to represent autonomous motivation (AM). CM is considered low quality and AM is considered high quality.

Motivation is a dynamic entity and AM can change into CM and vice versa depending on the degree to which basic psychological needs are being met.[11] High need satisfaction is associated with AM; low need satisfaction engenders CM. In SDT, motivation is influenced by three basic psychological needs: a need for self-determination/autonomy (eg, feeling of choice), a need for competence (eg, meeting preset standards), and a need for relatedness (eg, recognizing role models and peers). This means that the quality of motivation for education depends on an educational environment (eg, autonomy supportive teachers), which fosters or hampers meeting these needs.[11]

There is evidence from medical education that the best quality motivation—AM—is positively associated with better learning, better academic performance, and most importantly better patient care.[13,14] Besides the quality of motivation (the balance of AM versus CM in each individual), the quantity of AM and CM and their combination also play an important role in educational outcomes. Previous studies have used motivational profiles based on the different combinations of AM and CM have shown they are associated with important educational outcomes (eg, increased persistence, optimal learning patterns, and better academic adjustment).[15–17] This approach is termed "person oriented" and focuses on individuals with similar characteristics rather than on research variables. The different profiles and their association with educational outcomes found in these studies are shown in TABLE 1.[15–17]

All three studies show the importance of *quality* of motivation (relative high AM versus low CM) over the *quantity* of motivation (high scores on AM, CM, or on both) in relation to better educational outcomes. These studies were conducted among high school, college, and medical students, but not for pharmacists. In this study, we applied the personalized profile approach to pharmacists, because the combination of AM and CM could give us a more holistic picture of the quality and quantity of pharmacists' motivation for CE. Exploring what profiles apply to pharmacists and how these profiles might vary in relation to certain demographic characteristics might be of value for CE providers and legislative parties. This information can be helpful in providing targeted and effective CE courses for pharmacists to improve patient care.

The research questions for this study were as follows: (1) Can we identify motivational profiles, based on quality and quantity of motivation, for pharmacists participating in CE? (2) If so, how are these profiles associated with demographic and occupational characteristics of pharmacists?

Our study will contribute to the literature by validating SDT in a target group that has not been studied before and where motivation could be a key factor in the success of their education and practice. Based on the earlier findings, we hypothesize that there are three or four different motivational profiles in pharmacists for CE.

TABLE 1.

Motivational Profiles Found by Earlier Studies[15–17] in Relation to Their Educational Outcomes

Study Reference	Research Population	Variables Used	Motivational Profiles Revealed	Educational Outcomes
Kusurkar et al.[15]	Year 1–6 medical students	IM CM	HIHC LILC LIHC HILC	HIHC: desirable learning profile, high surface strategy LILC and LIHC: least desirable learning behavior HILC: good study hours, deep study strategy, good academic performance, and less exhaustion
Vansteenkiste et al.[16]	Study 1: secondary school (high school) students Study 2: college students	AM CM	Study 1 and 2: Good quality: high AM, low CM High quantity: high AM, high CM Poor quality: low AM, high CM Low quantity: low AM, low CM	Good quality: most optimal learning pattern, highest score on perceived need-supportive teaching High quantity: not better in academic functioning, higher levels on test anxiety Poor quality: no improved learning versus low quantity, higher on procrastination and test anxiety, lower on effort regulation versus low quantity *General conclusion: findings favored qualitative perspective compared with the other groups*
Ratelle et al.[17]	Study 1 and 2: high school students Study 3: college students	AM CM Amotivation	Study 1 and 2: Group 1: low AM, high CM, high amotivation Group 2: high AM, high CM, low amotivation Group 3: moderate AM, moderate CM, low amotivation Study 3 Group 1: high AM, low CM, low amotivation Group 2: high AM, high CM, low amotivation Group 3: low–moderate various motivational components	Students in group 2 reported highest degree of academic adjustment and had higher grades and lower absenteeism versus group 1 Group 2 and group 3 did not differ significantly on these measures Group 1 and group 2 had similar achievement levels, but students in autonomous group were more persistent in their study Group 1 and 2 had better academic performance than group 3 Being in group 3 was the most effective predictor of dropout

AM indicates autonomous motivation; CM, controlled motivation; HIHC, high intrinsic–high controlled; HILC, high intrinsic–low controlled; IM, instrinsic motivation; LIHC, low intrinsic–high controlled; LILC, low intrinsic–low controlled.

METHOD

Educational Context

Pharmacy practice in the Netherlands is regulated by the Royal Dutch Pharmaceutical Society (KNMP). Pharmacy graduates can be further educated to become community pharmacists or hospital pharmacists after training of 2 or 4 years, respectively. To maintain licensure, pharmacists must collect 200 accreditation hours every 5 years, by following CE. From January 2015, the KNMP deployed new rules,[18] which require that a part (10 hours) of the accreditation hours be invested in self-reflection like peer-review learning. The remaining 190 hours must be devoted to developing and maintaining four of seven core competencies derived from the CanMEDS model.[19] The new system demands a targeted approach to lifelong learning and stimulates the participation in specific CE courses to fill the personal knowledge and skills gaps of the pharmacists. For pharmacists, in the Netherlands, these new regulations represent a transition from a traditional continuous education system (in which pharmacists participate in stand-alone accredited CE courses without follow-up) to a CPD system that entails participating in CE courses (acting), managing knowledge and skills (evaluating), monitoring personal gaps (reflecting), and deciding how to fill those gaps (planning).[20]

Because this CPD system requires that pharmacists be more self-directed, and motivation influences all stages of self-directed learning,[21] this study can provide insight into how best to deal with the challenges arising from this transition.

Pharmacy Practice in the Netherlands

In the Netherlands, community pharmacies can be owned privately by pharmacists, but there is a trend toward companies owning or franchising community pharmacies. In 2014, there were 1979 community pharmacies: 456 privately owned, 889 franchise, and 634 chain pharmacies.[22]

In addition, there are 118 hospital pharmacies and 79 outpatient pharmacies situated in Dutch hospitals.[23] Registration as a community pharmacist is sufficient to work in an outpatient pharmacy.

Study Participants

From September to December of 2013, 831 pharmacists were invited to complete a questionnaire during CE courses provided by the Netherlands Centre for Post-Academic Education in Pharmacy. Researchers provided oral and written information about the study. The participants signed informed consent forms with permission to be approached for future research.

Instrument Used

A standardized and validated questionnaire called the Academic Motivation Scale (AMS)[24] was used to measure the quantity and quality of pharmacists' motivation for CE. Given that the AMS is based on SDT and has demonstrated high reliability (Cronbach alpha from 0.77 to 0.90),[25] we determined that it was the most suitable instrument for our target group and the study purpose.

TABLE 2.

Mean Scores of Pharmacists on Autonomous Motivation (AM), Controlled Motivation (CM), and Amotivation

Characteristic	No. Respondents, *n* (%)	Mean AM (SD)	Mean CM (SD)	Mean Amotivation (SD)
Gender (*n* = 392)				
Females	245 (62.5)	3.41 (0.54)	2.07 (0.72)	1.43 (0.58)
Males	147 (37.5)	3.19 (0.54)	2.00 (0.78)	1.55 (0.71)
		P < .001	n.s.	n.s.
Current practice setting (*n* = 413)				
Community pharmacy	220 (53.3)	3.31 (0.57)	2.22 (0.79)	1.60 (0.68)
Hospital pharmacy	193 (46.7)	3.36 (0.54)	1.83 (0.63)	1.34 (0.52)
		n.s.	*P* < .001	*P* < .001
Ownership status (*n* = 399)				
Owner	44 (11.0)	2.87 (0.65)	1.68 (0.60)	1.57 (0.84)
Nonowner	355 (89.0)	3.39 (0.52)	2.10 (0.75)	1.46 (0.59)
		P < .001	*P* < .001	n.s.
Work experience (*n* = 420)				
<10 y	260 (61.2)	3.44 (0.50)	2.24 (0.75)	1.55 (0.62)
>10 y	160 (37.6)	3.13 (0.60)	1.73 (0.63)	1.36 (0.66)
		P < .001	*P* < .001	*P* = .004
In training (*n* = 403)				
Yes	118 (29.2)	3.47 (0.50)	2.23 (0.69)	1.57 (0.64)
No	285 (70.7)	3.26 (0.58)	1.95 (0.75)	1.43 (0.63)
		P = .010	*P* < .001	*P* = .038

Mean scores are based on the AMS with a 5-point Likert scale, on which 1 represented strongly disagree and 5 represented strongly agree.

For this study, the questionnaire was translated in Dutch and back-translated in English to ensure correct translation. The Dutch version was piloted by pharmacists and educators. Adaptation of the questionnaire was inspired by published guidelines.[26]

The AMS consists of 28 questions designed to assess the various theoretical dimensions of motivation as described in SDT. An example of an item assessing identified regulation is "Because I think continuing education will help me prepare for my chosen career" and one assessing intrinsic motivation is "Because I enjoy discovering things I didn't know before." Responses were recorded on a 5-point Likert scale, on which one represented "strongly disagree" and five represented "strongly agree." Background information including sex, age, work experience, practice setting, and current training status was also collected. AM scores were calculated by averaging the scores of intrinsic motivation and identified regulation. CM scores were calculated by averaging the introjected regulation and external regulation scores. Amotivation was already a separate subscale in this questionnaire.

Ethical Approval

This study was approved by the Dutch Medical Education Association (NVMO)—Ethical Review Board (folder 262).

Statistical Analyses

The statistical analyses were performed using SPSS version 20. A Cronbach alpha was determined for all subscales. Pharmacists were grouped into different motivational profiles using K-means cluster analysis (squared Euclidean distances and iterative method) using the Z-scores of their AM and CM. Explained variances in AM, CM, and amotivation scores were calculated using analysis of variance. Cross-validation of the clusters was performed with different subsets.

To determine whether missing values were randomly distributed, Little's Missing Completely At Random test was used. The missing data (less than 1.1%) were managed in SPSS using expectation maximization.

RESULTS

Four hundred thirty-two of 831 pharmacists (response rate of 57.5%) responded to our questionnaire. Not all scales were completed by all pharmacists. TABLE 2 shows the demographics of the respondents and their corresponding mean scores on types of motivation. The scores of 425 pharmacists were included for further analysis. The internal consistency of the subscales was acceptable (Cronbach alpha varied from 0.66 to 0.87).

Women scored significantly higher on AM than men. Pharmacy owners scored significantly lower on both AM and CM than nonowners. Pharmacists working in a community pharmacy had higher scores on both CM and amotivation than pharmacists working in a hospital pharmacy. Pharmacists working for less than 10 years scored significantly higher on all types of motivation than pharmacists working for more than 10 years. Pharmacists in training had significantly higher scores on all types of motivation in comparison with pharmacists not in training.

The next step was the cluster analysis. The mean score of the participants was low (1.47) on amotivation, so we decided to use the clustering method of Vansteenkiste et al.[16] and Kusurkar et al.,[15] in which amotivation was excluded from the analysis. After trying to fit a 2-cluster, 3-cluster, and 4-cluster solutions, we found the 4-cluster solution to fit the data best. This explained 70.2% variance in the AM scores and 73.2% in the CM scores.

FIGURE 2 presents the final cluster solution based on Z-scores of AM and CM. Like Vansteenkiste et al,[16] we categorized our clusters into (1) a good-quality (GQL) motivation profile (*n* = 135, 31.8%) with relatively high scores on AM and low scores on CM, (2) a high-quantity (HQT) motivation