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Confidence matters: A Self Determination Theory study of factors determining engagement in self management support practices of UK clinicians.

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Abstract: Within a national quality improvement programme for self management of long term conditions, we surveyed clinicians working with patients with diabetes, COPD, musculoskeletal pain and depression. We applied the Self Determination Theory framework to explore what factors can facilitate and impede clinicians' engagement in clinical self management support (SMS), patient centeredness and organizational support for self management. We also investigated whether attending professional training for clinicians in the practice of SM increases motivation to support SM and reported use of SM practices.

The study was of 482 clinicians who were surveyed once (cross sectional design) and 114 clinicians who were surveyed before and after training (longitudinal cohort).

We found that the high level of satisfaction of competence need predicts practicing SMS in all three areas (clinical SMS: β coefficient=0.21; $p<.0001$; patient centeredness: β coefficient=0.50; $p<.001$; organizational SMS: coefficient=0.20; $p<.0001$). Internalized regulation to support SMS increases engagement in clinical and organizational SMS.

Comparing the two samples we explored what are the possible predictors of clinicians self referring to attend the training. Clinicians who volunteer to attend the training spend more time working directly with LTC patient ($\chi^2=4.8$; $df=1$; $p=.02$), had less previous relevant training ($\chi^2=4.77$; $df=1$; $p=.02$), and they have less autonomy to support SM ($t=5.0$; $df=476$; $p<.0001$). However they report more engagement in patient centered practices ($t=1.9$; $df=585$; $p=.05$). These factors are a good fit with the aims of the programme. We confirmed that attending the training had a significant, positive impact on clinicians' engagement in clinical SMS and patient centeredness, as well as their overall confidence to support SM.

We conclude that to facilitate clinicians to practice SMS it is very important to provide relevant professional training, professional support and incentives to foster clinicians' perceptions of their competence in relation to these practices. Organizations should develop a culture that values SMS, offer clinicians training to enhance their sense of competence to effectively deliver SMS and support clinicians in finding their own way of supporting SM; in other words create an optimal context to internalize regulation to support SM.

Keywords: long term conditions, self management, professional training, Self Determination Theory

Introduction

In the United Kingdom seventeen and a half million people report having long term conditions (LTC) and this number is increasing (Department of Health, 2007). Healthcare systems must change in response to growing demand to provide optimal, continuous care for patients living with LTC, in which patients' themselves have a key role to play.

Effective self management (SM) of LTC requires patients to be activated, informed and empowered, but at the same time they need the support of clinicians who are willing and skilled to engage in productive interactions, and work in partnership with their patients to develop mutually accepted and followed treatment plans (Epping-Jordan, Pruitt, Bengoa & Wagner, 2004; Hibbard, Collins & Baker, 2008)

Although there are many theories and studies on how to educate patients to elicit optimal behavioral change in relation to healthcare goals (Bandura, 1977; Janz & Becker, 1984; Prochaska & Velicer, 1997; Rollnick, Kinnnersley & Scott, 1993) very little is known about how to train clinicians to provide effective self management support (SMS), perhaps because there is no consensus on the behavioral skills required. We conducted a literature review to define what skills clinicians need to develop, to enable them effectively to support patients to self manage their LTC. The literature suggests some practical principles to facilitate patient SM, which include the four behavior change processes (Wagner et al, 2001): (1) *joint agenda setting* (agreeing with a patient on the purpose of consultations, on what he/she would like to achieve during the consultation, as well as building the relationship with a patient and establishing the communication pattern that is mutually satisfactory (2) *problem solving*), (3) *collaborative goal setting*

(collaborating with patients on setting short and long term healthcare and lifestyle goals that are realistic, achievable and consistent with patient's beliefs and values) and (4) *goal follow up* (agreeing with patients how, how often and why contact will be maintained to ensure progress on healthcare and lifestyle activities and goals are made, setbacks discussed and new decisions agreed upon). These principles also include other features of effective consultations that (a) allow and encourage the patient to define their health problems and purpose of consultation; (b) explore options for dealing with these problems; (c) rather than directing and controlling the patient in a prescriptive way, offer the patient choice and respect the choice when it is made; (d) collaboratively set goals and action plans not only to address health problems but also to maintain a healthy lifestyle; (e) the clinician retaining responsibility for technical knowledge but sharing the meaning and possible utility of that expertise with the patient (Anon, 1997; Ciechanowski, Katon, Russo & Walker, 2001; Clark & Gong, 2000; Coulter, 1997; DiMatteo, 2001; Holman & Lorig, 2000; Sleath, Rotter, Chewing & Svarstad, 1999; Stewart, Brown, Boon, Galajda, Meredith & Sangster 1999; Stewart, Brown, Donner, McWhinney, Oates, Weston & Jordan 2000, Epstein, 2000). Additionally organizing services to enable clinicians to deliver care for chronic illnesses in a way that promotes and encourages patients' SM is considered to be important for clinicians' engagement (Bonami et al, 2002; Brownson et al, 2007).

We used the Self Determination Theory (SDT) to explain how clinicians' practices that are important for effective SMS are formed and sustained, and what factors can facilitate or impede engaging in SM provision in clinical practice. According to the SDT the

likelihood that individual would engage in certain behavior and the quality of performance depends on the type of motivation to perform this activity. Intrinsic motivation is usually associated with spontaneous, interesting behaviors that are satisfying on their own. This type of motivation is mostly associated with early childhood when the external pressures to act in specific ways is minimal. Once social expectations and rules are being applied, most human behaviors are thought to be driven by extrinsic motivation. Extrinsic motivation can vary in the extent of relative autonomy, from being on the one hand 'externally regulated' when individuals perform the behavior to avoid punishment or to gain an external reward, to 'integrated' when performance of the behavior is congruent with one's values and needs on the other hand. The more autonomous is the extrinsic motivation, the better performance and sustainability to achieve the goals (Ryan & Deci, 2000).

The SDT proposes that people, under favorable circumstances, will internalize behaviors that are considered important, even if they are not particularly interesting or satisfying in their own right. With internalization, people's behaviors become more self determined and they experience greater autonomy in action. This process can be gradual when individual progresses through each stage of internalization (from external to more internal regulation), however it is assumed that people can readily internalize any new behavior at any level, depending on prior experience and current context (Deci, Ryan, 1985). Positive social context together with satisfying basic psychological needs (need for autonomy, competence and relatedness) creates an optimal situation that enhances internalizing extrinsically motivated behaviors (Deci & Ryan, 2001). Based on the above

assumptions we can stipulate that the optimal conditions for clinicians to engage in SMS for LTC is a working environment that values SM, supports clinicians in their efforts to deliver it and lets them chose the most appropriate way to do so, as well as enables them to develop and practice the skills to build up a sense of competence.

Aims:

Our study applies the SDT framework to explore what factors can facilitate and impede clinicians' engagement in SMS for LTC. We examined the relationship between satisfaction of basic psychological needs in relation to SMS, motivation to support SM and undertaking SMS. We also investigated whether attending training for clinicians in the practice of SM support increases motivation to support SM and their reported performance, and whether pre training motivation and psychological needs satisfaction in relation to SMS influences training effectiveness. We posed the following research questions:

1. *What is the relationship between psychological needs satisfaction (autonomy, competence and relatedness) in relation to SMS and individual's motivation to support SMS and practicing SMS in three areas (clinical SMS, patient centeredness and organizational SMS)?*
2. *What are the demographic and professional characteristic of clinicians who work with patients with LTC and self refer to attend professional training addressing principles and practice of SMS (vs. those who have not volunteered)?*
3. *Do clinicians who volunteered to attend professional training addressing principles and practice of SMS differ in terms of to using SMS practices , their*

psychological needs satisfaction and their motivation to support SM from clinicians who have not volunteered?

4. *How effective is the training in the practice of SMS in increasing the range and frequency of the SMS practices , and clinicians' motivation to apply them (i.e. improving their sense of autonomy, competence and relatedness in regard to SMS)?*
5. *What factors predict the effectiveness of training for clinicians in the practice of SM?*

Method

Design: The research was conducted as a part of the evaluation of The Health Foundation's Co Creating Health Initiative (CCH). CCH is a quality improvement programme commissioned by The Health Foundation that focuses on adults with LTC and the clinicians and healthcare services that they interface with. It aims to demonstrate that increased SMS leads to improved health. CCH is made up of five interrelated and mutually supporting interventions: creation of learning community, measurement for quality improvement, advanced development programme for clinicians, self management programme for people with long term conditions and service improvement. The programme is delivered in eight NHS demonstration sites across England and Scotland. It currently focuses on four LTC: diabetes, chronic obstructive pulmonary disease (COPD), chronic musculoskeletal pain and depression.

We surveyed clinicians from eight CCH demonstration sites asking them about their practices in SMS, confidence to effectively support SM, organizational context for SMS

and reasons why they do or do not support SM. The study applied two designs, in each we used the same measures to allow comparison:

Cross sectional design: The inclusion criteria were: being a clinician (working in clinical, academic or clinical support role) and spending at least some time during the working week in direct care of patients with one of target LTC. Clinicians included in the cross sectional sample had not volunteered for the clinician training programme.

Longitudinal design: The inclusion criteria for the cross sectional design applied were the same as for the cross sectional except that they had volunteered for the clinician training programme that focuses on techniques that have demonstrated an impact on the clinician-patient relationship and support patient self-management (Wagner et al, 2005). The key skills include the four behavior change processes identified above, but with a particular emphasis on agenda setting, goal setting and goal follow up (Wagner et al, 2001). The clinician training is delivered through three workshops of 3 hours each co-led by a clinician and a lay tutor (a person with the LTC).

Measures

Practices in Self Management Support (PSMS)

To assess the use of SMS practices in clinical consultations for patients with long term conditions we applied the Practices in Self Management Support questionnaire (PSMS) developed by the authors (Kosmala-Anderson, Wallace, Turner, 2009). The PSMS is a self report measure and comprises 25 statements on three subscales:

Clinical Self Management Support covers building an equal doctor-patient relationship, using the four behavior change processes and exploring the patient's self management

strategies (example statements: *'share power and responsibility with the patient'*, *'undertake joint problem solving to support patients to meet their goals'*).

Patient Centeredness covers customizing the treatment to a patient's preferences and taking an individualized approach (example statements: *'give patients individually tailored explanation of the symptoms'*, *discuss with each patient potential risks and benefits associated with choosing different treatment options'*).

Organization of Services to Support Self Management covers clinicians' engagement in organizing services to support SM, building a care team to support SM and supporting a patient's involvement in service development (example statement: *'give the patient choice about the care team member who will coordinate their care plan'*, *'regularly ask patients about their opinions regarding service provision and proposed changes'*).

Respondents are asked to rate each statement on a seven point Likert scale.

Basic Psychological Needs Satisfaction Questionnaire

We adapted the Basic Psychological Needs Scale developed from previous SDT research protocols (Deci & Ryan, 2001) to meet the purposes of our research. The adapted scales comprise eight statements regarding clinicians' competence in providing SMS, the reasons they provide SMS (autonomy scale), and the support they receive from their colleagues for these activities (relatedness scale). Respondents are asked to state how true each statement is for them using a seven point Likert scale.

Motivational Regulation to Support Self Management Questionnaire

The Motivational Regulation to Support Self Management Questionnaire is an adaptation of the Self-Regulation Questionnaire developed from previous SDT research.

Respondents are asked to assess to what extent each of 23 statements reflects the reason

why they help their patients to self manage their long term conditions. It measures how strong is each type of motivation (from intrinsic to external plus amotivation) to support SM for LTC. They indicate their responses on a four point Likert scale.

Procedure

Cross sectional study: The invitations to complete an online questionnaire were sent to managers of services, clinical leads for the condition and for the CCH project managers, GP practice managers and consultants from eight acute hospital trusts and twelve primary care trusts across the UK. They were asked to forward the invitation to eligible staff in their organization. Respondents were also offered hard copies of the questionnaire as an alternative.

Longitudinal design: Clinicians who signed up to attend the clinician training were surveyed within a week before the first and three weeks after the last session. They were offered a choice between web based and paper surveys.

Sample

The invitation to complete a web based cross sectional survey was sent to 951 clinicians. We received 482 surveys fully completed surveys (51% response rate). Out of 286 clinicians who completed all three workshops, 114 completed both pre and post training surveys (40% response rate for the longitudinal survey).

Sample	Gender		Profession				Care type			Training	
	Male	Female	Doctor	Nurse	Allied	Psych	Primary	Sec	Both	Yes	No
CS	109	369	118	163	66	13	187	132	27	264	50
	22.8%	77.2%	30.1%	42.5%	17.2%	3.3%	53.2%	37.6%	7.7%	55.2%	43.8%
LS	34	78	39	35	14	6	55	30	6	214	64
	30.3%	69.6%	40.1%	36.1%	14.4%	6.2%	59.8%	32.6%	6.5%	44.8%	56.1%

Results

What is the relationship between psychological needs satisfaction (autonomy, competence and relatedness) in relation to SMS and individual's motivation to support SMS and practicing SMS in three areas (clinical SMS, patient centeredness and organizational SMS)?

To test the assumption that greater needs satisfaction is associated with internalized regulation (which in turn predicts greater use of the SMS practices) we applied multiple regression to analyze the non interactive effect of psychological needs satisfaction on practicing clinical SMS, patient centeredness and organizational SMS, on the combined samples of the cross sectional survey respondents and the pre training (baseline) longitudinal samples (N=596). We found that strongest predictors of practicing clinical SMS is satisfaction of the need for autonomy (β coefficient=0.15; $p<.0001$) and competence (β coefficient=0.21; $p<.0001$) but not relatedness. Strong intrinsic motivation (β coefficient=0.15; $p=.01$), integrated motivation (β coefficient=0.23; $p<.0001$) and identified motivation (β coefficient=0.14; $p=.03$) were also good predictors of practicing clinical SMS. Practicing patient centeredness and organizational SMS was strongly

predicted by satisfaction of the need for competence (β coefficient=0.50; $p<.001$; β coefficient=0.20; $p<.0001$), but not autonomy and relatedness. Practicing patient centeredness was not predicted by any type of internalized regulation, however strong external motivation (β coefficient=-0.10; $p=.03$) was associated with lesser likelihood of engaging in patient centered practices. Practicing organizational SMS was predicted by high levels of competence in relation to SMS (β coefficient=0.20; $p<.0001$). Strong intrinsic motivation (β coefficient=0.14; $p=.01$) and integrated motivation (β coefficient=0.13; $p=.04$) were also good predictors of practicing organizational SMS.

We also tested for the interactive effect of psychological needs satisfaction on practicing SMS using factorial regression. Results showed that combined effect of psychological needs satisfaction did not increase likelihood of practicing SMS in any of the three areas (clinical SMS: β coefficient=0.29; $p=.82$; patient centeredness β coefficient=1.2; $p=.36$; organizational SMS: β coefficient=-1.0; $p=.42$).

What are the demographic and professional characteristics of clinicians who work with patients with LTC and self refer to attend professional training addressing principles and practice of SMS (vs. those who have not volunteered)?

We applied Chi square and independent T Test for to the following variables: gender, age, care type, profession, duration of working in healthcare, duration of working with patients with LTC, previous training experience.

There were no statistically significant differences between gender ($\chi^2=2.81$; $df=1$; $p=.09$) and age ($t=-0.32$; $df=587$; $p=.75$) of respondents from in sample. There were also no

significant differences between samples in regard to sector of work (predominantly working in primary or secondary care) ($\chi^2=2.27$; $df=4$; $p=.68$). There no significant differences in the proportions of nurses, doctors and other clinicians ($\chi^2=5.97$; $df=4$; $p=.20$). There were no differences in the duration of working in healthcare ($t=-0.21$; $df=584$; $p=.83$) nor of the duration of working with patients with LTC ($t=-0.17$; $df=587$; $p=.86$). However we found that clinicians who volunteered for training were less likely to have had relevant related training in the past two years ($\chi^2=4.77$; $df=1$; $p=.02$). Those who volunteered were more likely to spend more than 50% of their working time in direct care with patients with LTC (72% in this group spend over 50% of their time with patients with LTC versus 51% in non volunteers group). The difference was statistically significant ($\chi^2=4.8$; $df=1$; $p=.02$) so possibly clinicians who have not had previous training experience saw this as an opportunity for them to gain new skills.

Do clinicians who volunteered to attend professional training addressing principles and practice of SMS differ in terms of to using SMS practice , their psychological needs satisfaction and their motivation to support SM from clinicians who have not volunteered?

We tested whether clinicians who volunteer for training differ from clinicians who are in the pathway of care for one of the target LTCs but have not volunteered for the training in relation to using SMS practices, their psychological needs satisfaction and motivation to support SM. We found no statistically significant differences in self reported practices in clinical ($t=0.8$; $df=585$; $p=.44$) and organization of services to support self management ($t=1.5$; $df=585$; $p=.15$) between clinicians who have and have no signed up to attend ADP

training. But we found that clinicians who volunteered for training were more likely to conduct their consultations in a patient centered way ($m=5.40$) comparing to those who have not volunteered ($m=5.07$). The difference was statistically significant ($t=1.9$; $df=585$; $p=.05$). There were also no differences in clinicians' self assessed competence ($t=-1.7$; $df=477$; $p=.09$) and relatedness ($t=1.7$; $df=477$; $p=.09$) in relation to SMS, however we found that the level of autonomy of clinicians who volunteer for the training was significantly lower comparing to those who had not volunteered ($m=4.42$ and $m=5.03$ respectively; $t=5.0$; $df=476$; $p<.0001$). We have also found that clinicians who had not volunteered had stronger intrinsic and integrated motivation to support self management in comparison to their colleagues who volunteered for the course. The mean score for intrinsic motivation amongst non attendees was 4.09 and volunteers 3.89 ($t=2.1$; $df=536$; $p=.04$) and for integrated motivation 4.17 and 3.94 respectively ($t=2.4$; $df=537$; $p=.02$). These results may indicate that volunteers although they have not internalized SMS behaviors, acknowledge the importance of SMS and that attending targeted training can potentially enable them to better support their patients with LTC.

How effective is the training in the practice of SMS in increasing the range and frequency of the SMS practices, and clinicians' motivation to apply them (i.e. improving their sense of autonomy, competence and relatedness in regard to SMS)?

We found that after completing the training clinicians reported more practices in clinical SMS (pre course $m=4.47$; post course $m=5.09$; $t=-2.7$; $df=108$; $p=.01$) and patient centeredness (pre course $m=5.37$; post course $m=5.67$; $t=-2.4$; $df=108$; $p=.02$). There were no significant changes in the clinician's scores on the scale measuring how they are

involved in the organization of services to support self management, perhaps because this was only an indirectly discussed part of the course. Clinicians' self assessed level of autonomy in relation to SMS increased significantly after completing the training (pre course $m=4.95$; post course $m=5.27$; $t=-2.7$; $df=71$; $p=.02$). Also, as expected, confidence to support SMS increased significantly (pre course $m=4.31$; post course $m=5.03$; $t=-5.7$; $df=70$; $p=.001$). We did not find any significant changes in the clinicians' relatedness, perhaps because team building issues are not covered in trainings' curriculum.

We undertook additional exploratory analyses to ascertain whether the changes observed in the practices and psychological needs satisfaction of clinicians after they had attended training was comparable to the levels observed in those who had not attended. We have previously found that clinicians who have not volunteered to attend the training scored significantly higher in autonomy in relation to SMS comparing to their colleagues who self referred for ADP. After completing ADP clinicians who volunteered to attend the training 'caught up' with their colleagues. Completers' level of autonomy increased non volunteers level (non volunteers: $m=5.03$; completers: $m=5.07$). Moreover after completing ADP training clinicians reported higher competence level comparing to those who have not attended (non volunteers: $m=4.68$; completers: $m=5.26$; $t=-3.6$; $df=477$; $p<.001$).

Clinicians who completed ADP training were undertaking more clinical SMS and patient centered practices comparing to those who have not attended the training, however only the difference in patient centeredness was statistically significant (non volunteers: $m=5.07$; completers: $m=5.67$; $t=-3.6$; $df=582$; $p<.001$).

What psychological factors predict the effectiveness of training for clinicians in the practice of SM?

We tested whether pre training SMS practices, satisfaction of the need for competence, autonomy and relatedness and motivation to support SMS influence training's outcomes (post training practices in SMS). In accordance with the SDT assumptions we expected that pre training satisfaction of basic psychological needs together with internalized regulation to support SMS would predict post training engagement in SMS. We also expected that post training satisfaction of basic psychological needs will be associated with practicing SMS post training.

We applied factorial regression to test the combined effect of pre training practices in SMS and psychological needs satisfaction in relation to SMS on training outcomes. The interactive effect of pre training satisfaction of the three psychological needs combined (β coefficient=36.7; $p=.02$) and strong intrinsic motivation to support SMS (β coefficient=0.31; $p=.03$) were good predictor of practicing clinical SMS after completing the training. The only pre training predictor of post training engagement in patient centered practices was strong intrinsic motivation to support SMS (β coefficient=0.41; $p=.02$). However practicing patient centeredness was strongly predicted by post training satisfaction of three basic psychological needs: autonomy(β coefficient=4.49; $p<.0001$); competence (β coefficient=4.49; $p=.001$) and relatedness (β coefficient=4.35; $p=.01$) as well as the combined effect of all three needs (β coefficient=7.02; $p=.007$). Pre training competence (β coefficient=13.9; $p=.03$) and autonomy (β coefficient=9.8; $p=.04$), but not relatedness were strong predictors of engaging in organizational SMS after completing

ADP training. However the combined effect of pre training satisfaction of the three needs was also a strong predictor of post training engagement in organizational SMS (β coefficient=31.4; $p=.03$). Moreover practicing organizational SMS after completing the ADP training was strongly predicted by post training satisfaction of three basic psychological needs: autonomy(β coefficient=3.20; $p=.01$); competence (β coefficient=3.92; $p=.007$) and relatedness (β coefficient=4.48; $p=.03$) as well as the combined effect of all three needs (β coefficient=7.96; $p=.01$).

Discussion

Limitations of the study

There are a few limitations to this research that need to be considered when interpreting its results. First of all the size of both cross sectional and longitudinal samples is not big enough to guarantee its representativeness. Although we received back 482 completed cross sectional surveys (51% response rate) it still may not represent the views of the thousands of practitioners who may work with patients with LTC. Similarly in the longitudinal survey 40% of clinicians who completed the training filled in both pre and post training questionnaires. We need to be cautious and assume that clinicians who responded in both surveys might have been those with particular interest in SMS and in improving their practice in SMS skills. Moreover the secondary care sub samples of clinicians work mainly with patients with one of four long term conditions: diabetes, COPD, depression and musculoskeletal pain. However, it can be assumed in the UK that general practice primary care clinicians have wider caseloads, so we are cautiously optimistic that the sample represents clinicians with a wider spectrum of patients with

LTC. Finally all the measures we used are self report measures that are open to many self presentational and social desirability biases. We made an attempt to minimize the impact of these factors by assuring respondents' anonymity, however this should be considered when interpreting the results.

Predictors of practicing SMS for LTC

According to the Self Determination Theory, better satisfaction of the psychological needs and more internalized regulation in relation to the target activity increases the probability that the individual would regularly and willingly engage in that behavior. We found that high levels of satisfaction of competence predicts that clinicians will report practicing SMS in all three areas: clinical and organizational SMS and patient centeredness. Our results suggest that the most important thing organizations can do to support their clinicians in providing SM for patients with LTC is to offer them professional training that would improve their level of competence and confidence that they can effectively support patients in their efforts to self manage. We found that internalized regulation to support SMS is associated with engagement in clinical and organizational SMS, which is expected. According to the SDT people internalize certain behaviors much easier in positive social context so we can suggest that organizations would focus on building culture that recognizes an importance and values SMS and creating supportive working environment where clinicians feel free to choose the most appropriate way to support SM and feel that their efforts to provide SMS are appreciated by their colleagues and supervisors.

Predictors of volunteering for training in the practice of SMS

There were no particular demographic or professional characteristic distinguishing between clinicians who volunteered or did not volunteer for the training. However we found that clinicians who volunteer to attend training had less previous training experience so perhaps they perceived this as an opportunity to develop SMS skills. The satisfaction of the need for autonomy in relation to SMS was greater amongst clinicians who had not volunteered for the training, as well as their internalized regulation to support SM. One of the explanations is that clinicians who have not volunteered already attended more training, were more skilled to provide effective SMS and thus they felt more autonomous and motivated to do it, as it was more ‘natural’ behavior for them. Interestingly clinicians who volunteered for the training were more likely to engage in patient centered practices. These include having an individualized approach to each patient, responding to patient’s needs and expectations and customizing treatment to best fit patients unique situation. Providing patient centered care as described here requires good communication skills, certain personal features and mindset, rather than particular techniques that can be applied during clinical consultations. Clinicians who volunteered to attend the training spend more time in their working week with patients with LTC, suggesting a greater affinity for these patients and perhaps a recognition of the need for a higher level of training.

Effectiveness of training in the practice of SMS

The training course aimed to teach skills in exploring patient’s SM strategies and supporting patients in building new skills, using agenda setting, collaborative goal setting

and follow up and, problem solving that can be applied during consultations. The pre-post course improvements in clinicians' engagement on clinical SMS and patient centeredness suggest these aspects of the course were effective. We did not find any changes in clinicians' engagement in organizational SMS, which is probably related to the low observed course content in this area. We also found that completing the training significantly increases clinicians' confidence to effectively support self management and autonomy to support SM. We did not find any significant changes in relatedness, which may be a consequence of the course not being targeted on whole clinical teams but individual volunteers.

Psychological predictors of the effectiveness of training in the practice of SMS

In accordance with the SDT assumptions we found that pre training satisfaction of the three psychological needs was good predictor of post training engagement in clinical and organizational SMS. Post training satisfaction of the three basic needs predicted engagement in patient centered practices and organizational SMS after completing the training. This suggests that training aiming to increase clinicians' engagement in SMS should not only focus on teaching particular skills but also focus on building clinicians' confidence to support SM, team building and team working and enable clinicians to find they preferred way to support their patients to self manage.

Potential applications of the study

Our study has shown that the most important factors determining whether clinicians practice specific behavior change and organizational skills in SMS for patients with LTCs

are feelings of competence in relation to SMS, autonomy to engage in SMS, followed by internalized regulation to support SM. Unfortunately there is little research regarding the relationship between perceived competence, motivation and performance of healthcare professionals. Nevertheless our findings are in accordance with main assumptions of the SDT that a that positive social context, together with satisfying basic psychological needs, creates a situation that enhances internalization of certain behaviors. It is suggested that supporting competence facilitates internalization and thus increases the probability that the person will engage in the activities in the future.

We conclude that to facilitate clinicians to practice SMS for patients with LTC it is very important to provide relevant professional training, professional support and incentives to foster clinicians' perceptions of their competence in relation to these practices.

Collaborative behavioral and lifestyle change skills are relevant to all clinicians, however we identified a few factors that increased the likelihood of clinicians volunteering for this training. Clinicians who spend more than half of their working week with patients with LTC, who already have well developed good communication skills, sensitivity to patients' needs and expectations, but at the same time they feel they lack skills and techniques to effectively support patients SMS are the group who perhaps will benefit the most from attending training. Professional training should focus not only on developing communication skills and SMS techniques, but also focus on the importance and value of SM and perhaps also cover some aspects of building clinical teams to work together to support SM for LTCs. We suggest that targeting training on whole teams is a requirement for achieving improvements in the organizational aspects of self

management. This may be for because fellow team members can support peer learning, but also for practical reasons in that team members together hold the knowledge and resources to make changes in the organization of their services. From the findings of this study we can also recommend that to support clinicians in their efforts to support SM for LTC organizations should develop a culture that values SMS, offer clinicians training to enhance their sense of competence to effectively deliver SMS, support clinicians in finding their own way of supporting SM and ensure they know that their efforts to support SM are recognized and appreciated by their colleagues and supervisors; in other words create an optimal context to internalize SMS behaviors.

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