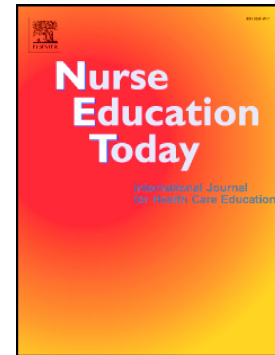


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Development and validation of INTENSS, a need-supportive training for nurses to support patients' self-management

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Development and validation of INTENSS, a need-supportive training for nurses to support patients' self-management.

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Abstract

Background: The growing prevalence of chronic illnesses requires nurses to support self-management and help patients integrate the chronic illness into their life. To our knowledge there are currently no training programs that combine the necessary components to adequately enhance nurses' competencies in self-management support.

Objective: The systematic development and validation of a need-supportive training in self-management support for nurses.

Design: A three-phased study, according to van Meijel and colleagues (2004), with collection of building blocks, design, and validation of the need-supportive character of the training.

Setting and participants: Eight training groups with 30 nurses, 24 nursing students and nine social healthcare workers from different nursing colleges in Flanders, Belgium.

Methods: In phase one a literature review, current practice analysis, and problem and needs analysis were performed. In phase two, the INTENSS training intervention was developed, framed within the Self-Determination Theory and the 5A's-Model. The training consisted of a basic training module and a video-interaction guidance module. The intervention was subsequently tested in eight training groups ($N=73$). Participants provided feedback afterwards in focus group discussions. The intervention was cyclically adapted to trainees' experiences and suggestions. In phase three, we evaluated the need-supportive character of the training intervention.

Results: Phase one indicated the need for training, since nurses' application of self-management support was limited and practiced from a narrow medical point of view. In phase two we developed a theory-driven and multi-faceted training and build on attitude, skills and reflection in the training. The training was framed within the Self-Determination Theory both at the didactical level as well as on content and format. Overall participants appreciated the building blocks of the training as supporting their basic needs for autonomy, relatedness and competence.

Conclusions: INTENSS, a multi-faceted need-supportive training in self-management support was developed, successfully taking in account participants' needs.

Keywords. intervention development, training, education, Self-Determination Theory, self-management support, health care, nursing, chronic illness

Introduction

The prevalence of chronic illnesses continues to grow (World Health Organization, 2014) and requires healthcare professionals to adapt new ways of working with chronic ill patients (Wagner et al., 2001). A core component of these 'new ways of working' is the empowerment of patients to take an active role in the management of their (chronic) condition, i.e. self-management.

Self-management refers to a person's ability to manage and incorporate the consequences of their chronic condition in their day-to-day lives (Barlow et al., 2002) and focuses just as much on role management and emotional management, as on the medical management of their condition (Lorig & Holman, 2003). Supporting patients towards self-management restores and strengthens the power and autonomy of the patient and helps the patient to integrate the condition into daily living.

Nurses often provide self-management support (SMS) interventions (Elissen et al., 2013). However, many nurses find it difficult to adequately support the self-management of their patients (Duprez, et al., 2017, 2018). They report low self-efficacy, and a lack of knowledge and skills to adequately apply SMS strategies in practice (Duprez et al., 2018; van Hooft et al., 2013). Nurses' perspective on SMS is also often narrowed to support for the medical management of living with a chronic condition (Davies et al., 2018). Moreover, nurses report the need for additional training on this issue (Jones et al., 2013). These observed gaps in current practice require a well-designed training intervention to enhance nurses' SMS competencies.

Recent systematic reviews have unravelled different components that can make a training intervention to enhance professionals' competencies in SMS successful (Davies et al., 2018; Duprez, Vandecasteele et al., 2017). Self-management support training interventions are considered as complex interventions as they contain several interacting components and they imply several and sometimes difficult behaviours required by those healthcare professionals delivering the SMS (Craig et al. 2008). Characteristics of training interventions for SMS should be theory-driven, provide reflection upon current practice, bring theory into practice, organize follow-up, and provide individual (video-)feedback. Although current interventions to train nurses in SMS tap into one or more of the important success factors, to date, there are no interventions described in literature that combine multiple effective factors or components to enhance healthcare professionals' competencies in SMS in chronic care (Davies et al., 2018; Duprez, Vandecasteele, et al., 2017). Transparency on the design and validation of complex interventions is needed to understand their feasibility, appropriateness, meaningfulness and effectiveness (van Meijel et al., 2004). Therefore, the main goal of this article was to report the systematic design and validation of a training for nurses to support the self-management of their patients.

Several models offer a structured format to develop complex interventions (Craig et al., 2008; Kok et al., 2004; van Meijel et al., 2004). Although the models differ in what they emphasize, they are similar in the phases they outline and in recommending mixed method research. Since the Utrecht model for development of complex nursing interventions (van Meijel et al., 2004) explores the building blocks of an intervention in greater depth and incorporates a cyclical procedure of testing, evaluating, revising and reassessing the adapted intervention, our training was developed according to the model of van Meijel and colleagues (2004). In the next sections, the phases of the model were applied on the development of the training intervention. We refer to Table 1 for an overview of the methods, main results and their impact on the design and content of the training intervention.

Phase 1. Collection of building blocks for the design of the training intervention

In phase 1, three steps were undertaken: a literature review, a current practice analysis, and a problem and needs analysis (van Meijel et al., 2004). In Table 1 an overview of the phases of the model by van Meijel et al. (2004), methods, results and impact on the content of the intervention are outlined.

Literature review

The literature review examined what evidence was already available about effective components for a training intervention for healthcare professionals to enhance SMS and determined the starting point of the intervention development. In Table 1, the results of the literature are outlined. In general, effective interventions to enhance professionals' competencies in SMS in chronic care need to be multi-faceted at the didactical and content level. Building on theoretical knowledge, attitudes, skills and reflection should be combined (Davies et al., 2018; Duprez, Vandecasteele, et al., 2017). Although training interventions described in the recent reviews contain valuable elements for a training intervention about SMS, none did match all aforementioned characteristics.

According to van Meijel and colleagues (2004) theory-driven interventions are preferred to direct intervention development, which was also highlighted in the literature on training effectiveness (Davies et al., 2018; Duprez, Vandecasteele, et al., 2017). Theory-driven interventions not only show *how* the intervention works, but also indicate *why* the intervention works (van Meijel et al., 2004). Self-Determination Theory (SDT; Deci & Ryan, 2000), a leading theory on human motivation and autonomy, provides a suitable framework to study the challenges of patients' self-management and professionals' self-management support. SDT identifies three innate needs for Autonomy, Bonding and Competence, that, if satisfied, allow optimal function and growth. These three needs are shortly known as ABC. This basic SDT assumption implies that healthcare professionals should adopt a need-supportive way of interacting with patients (Jung et al., 2012), as a foundation for SMS. This assumption is based on underlying the premises of supporting trainees' basic needs support, trainees' autonomous motivation for providing need-supportive SMS to patients themselves will increase (Su & Reeve, 2011).

To conclude, a multi-faceted training is needed, which supports trainees' own ABC-needs, as well as takes into account participants' learning needs to become able to provide support to their patients from an ABC-standpoint. To develop such a training additional research was needed to map nurses' current practice, to attune further on nurses' competency needs and to attune to encountered challenges in the care for people living with a chronic condition.

Current practice analysis

A current practice analysis addressed the SMS strategies nurses currently use and helped us to attune the training not only to what is needed from the professionals' perspective but also to attune to what is needed from the patients' perspective.

Facilitating patients with a chronic condition to take an active part in the management of their condition, requires healthcare professionals to be encouraging and motivating along the five stages of SMS as outlined in the 5As model of Glasgow and colleagues (2003; see Table 1). A recent current practice study in Flanders among hospital nurses ($N=323$), home care nurses ($N=154$) and final-year nursing students ($N=256$) revealed that nurses did not feel competent enough in providing SMS to patients along all five stages. Although nurses felt competent in advising patients on medical issues (advise), they lacked mainly competencies in collaborative goalsetting, shared decision making (agree) and organizing follow-up (arrange) (Duprez et al., 2018). Even final year nursing students ($N=256$), who are about to graduate, reported an overall low level of performance in delivering SMS and did not feel ready to incorporate SMS in practice, especially when it came to role and emotional management of patients (Duprez, Beeckman, et al., 2017).

Additionally, healthcare professionals' primary strategy to support patients' self-management is to increase knowledge and facilitate behavioural change by the didactic delivery of information (advise) (Franklin et al., 2018). A recent interview study with nurses in Flanders ($N=16$) confirms this finding, and adds that some nurses amplified this educational approach of SMS with a more attuned care relationship [reference blinded for submission]. Disease management and compliance to therapy are central in the provided care. This medical approach of SMS excluded the exploration of role and emotional management, even though these are equally important aspects of self-management (Schulman-Green et al., 2012). Furthermore, self-management is mainly seen as the patient's responsibility (i.e., to control their condition, adopt and maintain healthy strategies, being highly motivated). The nurses' duty is to monitor patients' health and progression. When patients fail to hold up on the treatment plan and recommendations, nurses try to keep patients back on track and intensify the process of medical support which follows a more directive approach [reference blinded for submission]. They do this by relying on controlling and domineering strategies, such as repeatedly providing the same information, using persuasive techniques including threats, and instilling fear in patients, in order to obtain patients' adherence (reference blinded for submission; Franklin et al., 2018). Yet, patients expressed a preference for individually adapted information, adjusted to their informational needs and taking into account their social context which shapes their behaviours. This information should be accompanied by actionable strategies to manage their disease in all its aspects, including role and emotional management (Franklin et al., 2018).

To conclude, nurses' application of SMS is limited and practiced from a narrow medical point of view, that primarily consists of informing patients, which is the lowest level of patient participation. Nurses take a strong lead in the self-management and exert control when the patient is not compliant. A training intervention on SMS needs to foster the adoption of a broader view on SMS, allowing nurses to balance the responsibility over the care process, allowing patients to take an active role in disease management.

Problem and needs analysis

Examination of research findings describing the healthcare professional perspective on the problem is an essential next step in designing the intervention attuned to the receiver's needs. The problem and need analysis was conducted in three steps.

A survey of 477 nurses revealed that SMS behavior correlates with a positive SMS-attitude of the professional (Duprez et al., 2013). Furthermore, a feeling of self-efficacy and training in SMS are core predictors of actual SMS by the nurse. Additional training of nurses, that also encompasses attitude building on SMS, is one viable strategy to enlarge SMS.

Next, a qualitative study using individual ($N=16$) and focus interviews ($N=19$) with nursing teachers of a Belgian university college took place. During the (focus group) interviews, nursing teachers acknowledged the need (a) to provide practice in real life settings with real or simulated patients, (b) to ensure accurate feedback on the performance of the student, preferably by video-feedback, (c) to install a follow-up on students' skills, and (d) to help students reflect on struggles they may have in applying person-centred care in practice and handling conflicts with a more 'traditional' perspective on health care. The suggestions formulated by the teachers were linked with the available evidence about effective components for a training intervention for healthcare professionals to enhance SMS (see phase one – literature review).

To conclude, the problem and needs analysis indicated that trying to build a positive attitude and self-endorsed motivation towards the practice of SMS can be important. Additional SMS training is needed. Opportunities for trainees to practice skills to support patients' self-management in practice

and also providing feedback and follow-up are important, based on the teachers' perspectives and underpinned with evidence from the literature review.

Insert Table 1 here.

Phase 2. Training intervention design

Based on the literature review and the results of the current practice and problem and needs analyses, we designed the INTensive Training and Education in Self-management Support (INTENSS) training intervention. Five experts, with different backgrounds in nursing, education and psychology, were involved in the development process. Between 2018 and 2019 these experts discussed the content of the INTENSS training in monthly meetings.

The training intervention was framed within Self-Determination Theory (SDT; Deci & Ryan, 2000), both in content and format, and followed the steps of SMS outlined by the 5A's model by Glasgow and colleagues (2003). The training intervention consisted of a Basic Training Module (ca. 8 hours), which can be taken as a stand-alone module, and an additional Video-Interaction Guidance Module (ca. 4-8 hours). The **Basic Training Module consisted of two sessions**. The first session (4 hours) started with vision & attitude development towards a broad perspective on self-management, framed within SDT. The second session (4 hours) comprised of ABC communication skills, as well as classroom practice of these skills, framed within the 5A's (Glasgow et al., 2003). Next, we developed a **Video-Interaction Guidance (VIG) Module** to provide individual feedback on trainees' SMS-performance and ABC communication skills. This VIG module was scheduled after trainees had the chance to practice the learned skills in practice. Such VIG can be provided in one or two sessions, three to four months post-basic training. Training groups were not larger than 12 persons to secure enough time for practice, discussion, interaction and to create a safe environment for training complex skills. The training intervention was provided by one trainer for the basic-training and one to two trainers for the VIG Module. For the VIG an extra trainer joined the training when the group exceeded seven trainees in order to provide enough time for every trainee to go through the whole VIG protocol.

Table 2 gives an overview of the different components of the training.

The training intervention went through a cyclical process of trying out, evaluating, revising the different components of the training intervention and reassessing the adapted intervention among nurses. Two questions guided this process:

1. Which characteristics are experienced as need-supportive by the trainees and how do these need-supportive characteristics translate into the different building blocks of the training intervention?
2. Which building blocks are experienced as need-frustrating by the trainees and how are these need-frustrating elements adapted throughout the different versions of the training intervention to evolve towards a more need-supportive training intervention?

The training intervention was tested in eight different training groups (total $N=73$) with professional bachelor nurses ($N=30$), nursing students ($N=34$) and some social healthcare workers ($N=9$), in Flanders, Belgium. To allow group comparison in the next study stage, some groups received the basic module and others the basic plus the VIG sessions. More specifically, 49 participants followed the basic training, whereas 24 participants received basic training as well as one or two VIG sessions.

Five training groups provided information and feedback on their experiences with the training intervention (focus group discussions) after completing the whole training, with in total 41 participants. After four focus groups, an additional one did not reveal new experiences, indicating saturation in feedback on training experiences.

The study was approved by the Research Ethics Committee of the XXXXX [blinded for submission] University Hospital (B670201938562). Participants gave their written consent prior to participation. Focus groups were held by researchers not familiar with the trainees to maintain unbiased answers. Semi-structured focus group interviews started by asking about trainees' experiences with the training intervention in either a positive or negative way. They were encouraged to tell the interviewer when they felt their ABC-needs were supported and frustrated. The illustrating experiences were explored in-depth by elucidating the situation, what was important to the trainees, how they felt and what the trainer could have done to handle a need-frustration situation in a more supportive way. The interviews were audiotaped and transcribed verbatim by an independent transcriber.

Data collection and analysis was an iterative and reflexive process. Transcripts were read to capture an overall impression. Focus group interviews were analysed with thematic analysis to identify and report emerging themes (Braun & Clarke, 2006). Rigour of the analysis was established by researcher triangulation. Intermediary results were discussed and checked against the data in a team of four researchers.

The coding of the data evolved from initially open coding, with conceptualizing the data, to clustering interrelated themes. These interrelated themes were verified in the data, refined and restructured. Subsequently, overlapping codes were merged. The interrelated themes fitted well in an ABC-need supporting or frustrating structure. Building blocks participants experienced as need-supportive were no further subject for revision. Moreover, the need-supportive building blocks contribute to the validation of the training. Building blocks experienced by the trainees as need frustrating, were revised and adapted to underlie need-satisfaction of the participants. Table 2 provides an overview of the interrelated themes, structured along the three basic needs either supporting or frustrating. Quotes presented in the right side of Table 2 serve to clarify these views. Next, themes were linked with the corresponding didactics and content of the training intervention. Revision of the training intervention was done based upon the trainees' need-frustration experiences. The rationale for revisions is outlined in the third column of Table 2.

Overall, participants appreciated the training as supporting their basic needs for autonomy, relatedness and competence. Although some interventions were experienced as not intrinsic pleasant (such as the role play exercises, Video-interaction Guidance Module), the goals targeted by these training components contribute to trainees' personal learning objectives and in doing so are in line with trainees' ABC-needs.

Insert Table 2 here.

Phase 3. Validation of the training intervention design

The training intervention was validated by trainees self-reported need-supportive and need-frustrating experiences during the training. After each part of the training intervention, trainees ($N=69$) completed the Basic Psychological Need Satisfaction and Frustration Scale questionnaire (Aelterman et al., 2016; Wilson, Rogers, Rodgers, & Wild, 2006). This 24-item self-report questionnaire measures the satisfaction and frustration of the three basic needs and was attuned to the setting of training experiences. Participants rated each item on a scale from 1 (definitely false) to 5 (definitely true). There were 12 items to measure basic psychological need satisfaction (sample

items: “I felt choice and freedom in what I was thinking or doing during the training”; “I felt able to reach the prescribed goals of the training”; “I felt close and connected with the other trainees and the trainer”). The other 12 items measured need frustration during the training (sample items: “I felt pressured to think and handle on a prescribed way”; “I felt insecure about my abilities to transfer the suggested methods into practice”; “I felt a distant relation with the trainer and the other trainees”).

As can be seen in Figure 1, all scores on the need *satisfaction* are above ‘3’ (the middle of the scale), whereas all scores on the need *frustration* are below ‘3’.

Insert Figure 1 here.

Next, we test whether trainees experience differences in need-support satisfaction and need-support frustration between the Basic Training Module and the VIG Module. We performed a within-subject comparison of the means of need-support satisfaction and frustration in the sub-group of trainees who participated in both modules. The means and standard deviations of the self-reported need satisfaction and frustration during the basic training and VIG sessions together with the paired-sample t-tests can be found in Table 3 ($N=24$). The results of paired-sample t-testing revealed that trainees reported no differences in need-support satisfaction nor need-support frustration between the Basic Training and the VIG module. Only a marginally significant difference for relatedness satisfaction appeared: Trainees who participated in both modules of the training intervention tend to feel more relatedness satisfaction after VIG compared to their initial Basic Training module (trend of significant difference, $p = .072$).

Insert Table 3 here.

Discussion

Despite nurses report the need for training since they find self-management support challenging, there existed no training programs that combine the necessary components to adequately enhance nurses’ competencies in self-management support. With the systematic and rigorous development of the INTENSS need-supportive training program for nurses to support patients’ self-management, we fill this gap. The INTENSS training intervention is based on current available knowledge and builds on a combination of theoretical knowledge, attitude development, skill development and reflection during a Basic Training Module and a Video Guidance module. The broader theoretical framework of SDT, the time and safety to practice autonomy-supportive communication together with attuned individual feedback were most appreciated by participants. In general, participants’ needs for autonomy, competence and relatedness were highly satisfied, whereas active frustration of these needs was very limited during the training.

The theoretical framework of SDT (Deci & Ryan, 2000) served both as a guideline to develop the didactical methods of the training, as well as a focus of the content of the communication training in SMS. SDT is well known for his focus on three needs for Autonomy, Bonding and Competence. SDT assumes that the support of trainees’ basic needs, trainees’ autonomous motivation for providing need-supportive SMS to patients themselves will increase. Participants of the INTENNS training intervention spontaneously recognized the support of all three needs as core components of the training. Furthermore, trainees self-reported need-supportive and need-frustrating experiences during the training further underlined the need-supportive character of the training.

Yet, participants sometimes experienced a friction between their needs during the training. Some interventions such as the role-play exercises and the video-interaction guidance, developed to support trainees’ thorough understanding of acquired skills, also pose a threat on their need for autonomy and relatedness as participants sometimes feel reluctant to expose themselves to such

confronting intervention in front of their peer group (Pfister-Minogue & Salveson, 2010). When such friction between needs appear, it is important, according to SDT, to acknowledge trainees' feelings instead of invalidating them. This can be done by explaining why these exercises are important and to discuss how such exercise can be done as safe and comfortable as possible with the trainees. Moreover feedback on such role-play and video-interaction exercises also needs to enhance feelings of competence, autonomy and relatedness through the phrasing of the feedback message. This can be done by shifting the focus from the individual to the learning process, by encouraging to self-regulate the learning process, making the learning a 'we-story' rather than a 'you've failed story' (Ten Cate et al., 2011). As such, when these exercises are incorporated in a warm and safe environment, they provide a unique opportunity for deepened and reflective learning and the tension between the initial reluctance and the pull-factor of the benefit of such exercises will be relieved from the participants (Tschannen et al., 2013). Indeed, at the start of the role-play and the video-interaction guidance, trainees were reluctant, afterwards, they report to have learned a lot. A participant explained it well: *"I didn't always like it that much, that was another part. But purely from what I got out of it and I did like it much better. And I've learned much more in a shorter time than, for example, that you get out of regular lessons in communication"*. Moreover, we find a trend of significant increase of self-reported relatedness satisfaction for trainees who additionally to the baseline training participated in the video-interaction guidance module.

To attain maximal need-support in the training intervention, user-feedback driven co-evaluation of the need-supportive and need-frustrating character of all building blocks was performed in five training groups. Adaptions to the training intervention were made, until no further revisions for building blocks experienced by the trainees as need-frustrating, were necessary. Another strength of the training intervention, lies in the co-creation process of the training intervention: a multidisciplinary team composed of members of a university and members of a university college developed the training together, integrating both theoretical and practical knowledge. However, the co-creation process of the training intervention is also limited. Although the perspective of the patients was included by means of the available evidence reported in a systematic review (Franklin et al., 2018), patients were not included in the development of the training, nor in providing the training intervention as co-teachers.

The training intervention has been appreciated as very hands-on and useful by trainees. Nonetheless, we recognise that nurses do a lot of invisible work such as documentation and organisational activities, which sometimes competes with bedside care (Michel et al., 2017). Barriers such as 'lack of time' are brought in as a reason why SMS is not performed (van Hooft et al., 2016). During the training we reflect on such barriers to provide SMS at daily base. We also started from trainees' own perspectives and cases to practice SMS to overcome that the learned insights and skills do not translate in daily nurse practice. However, this aspect could get even more attention in further training interventions, especially during the 'arrange phase'. It would be interesting to train nurses in how they can integrate the documentation and organisational activities into SMS practice (Michel et al., 2017); for instance 'looking for information together with the patient, rather than just handover the information to the patient'.

Next we want to highlight, that the training intervention is now incorporated in basic and continued nursing education and training programs for nurses, such as primary care nursing and chronic care nursing. Although, the training intervention is initially developed for nurses, 12% of trainees had another professional background in healthcare. None of these 'non-nurse' participants felt their needs were thwarted because of their deviating background, nor felt the training irrelevant for them. Moreover, during the continues development of the training intervention we gradually attuned to trainees baseline knowledge and different workplace environments (such as heart failure care nursing, diabetic nursing). Although we made some effort in this, a systematic testing of the training in training groups with a different background such as physicians, dieticians, social workers

etc., was not subject of the study. In future research, we recommend a whole system approach (Wagner et al., 2001) by training all members of an existing healthcare team.

It will be critically important to evaluate whether the participating nurses apply their newly learned skills in practice. Therefore, in a next step, a process and outcomes evaluation study is intended in order to gain insight in what was helpful in the acquisition of skills for self-management support, and if changes were seen in trainees' attitude, motivation, self-efficacy and skills for supporting towards self-managing their life with the chronic illness. These results will be reported in a follow-up paper.

Conclusion

We developed INTENSS, a multi-faceted training, which takes into account participants' learning needs to provide SMS from an ABC-standpoint. The systematic development led to a theory- and user-feedback driven training intervention. A first enrolment of the training has been successfully welcomed by the trainees. The focus group interviews and need-satisfaction questionnaires reveal that participants not only appreciated the way the training helped them to support the autonomy and competence of their patients to live well with the illness, but they also valued the ABC-elements that were incorporated in the didactical format of the training.

Conflict of interest

The study is incorporated as an unpublished chapter of the doctoral thesis of the last author. The doctoral thesis is an unpublished document, however is the foundation for the development of the INTENSS training intervention. There is no risk of conflating the evidence base.

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Table 1

Overview of the phases of the model by van Meijel et al. (2004), methods, results and impact on the content of the intervention

Phase	Step	Methods	Main results	Content of the nursing training intervention
Building blocks needed for the training intervention design	Literature review	<p>Systematic review on the effective components of training interventions to enhance nurses' competences in SMS in chronic care (Duprez, Vandecasteele, et al., 2017)</p> <p>A realist synthesis of evidence from self-management support training to trigger a mindset shift on SMS (Davies et al., 2018).</p> <p>Theoretical foundation of the training intervention: Self-Determination Theory (SDT; Deci & Ryan, 2000).</p>	<p>The most effective practices to enhance nurses' competencies in self-management support (SMS) in chronic care: (1) theory-driven training interventions; (2) with time to reflect upon healthcare professionals' own definition and attitude regarding SMS and thereby help to generate empathy towards the patient; (3) facilitate reflection; (4) give time to practice skills; (5) provide individual (video) feedback, and (6) include follow-up session(s).</p> <p>SDT holds the assumption that individuals are inherently proactive and have a natural tendency to develop when their basic needs are met and nurtured by their environment. SDT identifies three innate needs that, if satisfied, allow optimal function and growth: (1) Autonomy which refers to a sense of volition, ownership or inner</p>	<p>(1) Focus on Self-Determination Theory (Deci & Ryan, 2000) as the main theoretical framework of the training intervention. (2) Focus on own definition of SMS. Exploration of own attitudes regarding SMS. (3) Deepening attitude and skills through reflection in group and taking a patient's perspective. Reflection on barriers and pitfalls. Deducing practical tips to overcome barriers and implement SMS. (4) Focus on thorough practise of communication skills. (5) Video-interaction guidance (VIG) of trainees on SMS. (6) A two day training followed by the VIG follow-up training. The VIG module was scheduled after trainees had the chance to practice the learned skills in practice.</p> <p>SDT served both as a guideline to develop the didactical methods of the training, as well as a focus of the content of the communication training in SMS.</p>

<p>Meta-analysis on evidence for the link between caregivers' SDT-based communication style and lifestyle changes within patients (Ng et al., 2012).</p>	<p>endorsement of one's behavior, (2) Bonding/Relatedness referring to feeling connected and respected by meaningful others, and (3) Competence referring to a feeling of self-efficacy, capacity to reach goals. These three needs are shortly know as ABC. This basic SDT assumption implies that healthcare professionals should adopt a need-supportive way of interacting with patients, as a foundation for SMS. Satisfaction of a patient's needs for autonomy, relatedness and competence within a healthcare climate predicted moderate to strong levels of welfare, such as better mental health and higher levels of health behaviors such as e.g. abstinence from tobacco, being physically active, and taking prescribed medication.</p>	<p>Design of didactical methods to train trainees to satisfy the three basic needs of Autonomy, Bonding and Competence in their patients.</p>
<p>Meta-analysis on the effectiveness of intervention programs designed to support autonomy of the trainees (Su & Reeve, 2011).</p>	<p>Not only patients benefit from a need-supportive climate, also employees and trainees profit from a climate that support their ABC-needs. Multiple elements of autonomy-support during relatively brief sessions of skill-based activities are recommended, and use different types of media to convey the content of the program.</p>	<p>Design of didactical methods to meet <i>trainees'</i> own ABC-needs. Autonomy-support is a relatively complex construct. It refers to the interpersonal behaviour one person provides to nurture and develop the other person's inner motivational resources. This is done by acknowledging perspective, providing explanatory rationales, minimizing control, allowing trainees the time they need for self-paced learning to occur, and acknowledging and accepting</p>

			expressions of negative effect Special attention was made to use different types of media in the didactical approach.
	Inventory of the steps to provide SMS (Glasgow et al., 2003).	A model of SMS applicable across different chronic illnesses, presents recommendations for assisting healthcare professionals to support patient's self-management. The model prescribes an ongoing iterative process (rather than a linear sequence) between patient and healthcare professional, centralizing the patient by using a thorough assessing process, collaborative goal setting and decision making, including shared problem solving, and systematic follow-up (5 A's).	Incorporating the 5A's-model as general structure for the stages and content of SMS (Glasgow et al., 2003): (1) Assess (ask about the behavior); (2) Advise (give a clear message of encouragement to change); (3) Agree (set goals based upon readiness to change); (4) Assist (in acquisition of knowledge, skills, confidence and supports); and (5) Arrange (referrals and schedule in follow-up contacts).
Current practice analysis	A survey among hospital ($N=322$), home care ($N=154$) nurses and nursing students ($N=256$) (Duprez, Leeckman, et al., 2017; Duprez et al., 2018).	Nurses do not feel competent in providing SMS to patients. Nurses mainly focus on medical management by providing advice to patients and mainly ignore other aspects of SMS such as role and emotional management.	Focus on practice rather than knowledge.
	A qualitative synthesis of patients' and healthcare professionals' perceptions of SMS interactions (Franklin et al., 2018).	Professionals' primary strategy to support patients' self-management is to increase knowledge and facilitate behavioural change by the didactic delivery of information.	Broadening trainees' definition on SMS from a strict medical management to role and emotional management. Building in reflection and discussion upon the paradigm shift in current health care from a traditional paternalistic paradigm to a patient-centred paradigm, where autonomy of the patients is highly valued. As well as from a compliance perspective towards the outcome of quality of life.
	An exploratory qualitative study to acquire insight in the origin, meaning and processes underlying nurses' feelings of success in supporting patients towards self-management	Disease management and compliance are central in the provided care. Self-management is mainly seen as the patient's responsibility.	

	[reference blinded for submission].	Nurses often rely on controlling and domineering strategies. Patients prefer individually adapted information, adjusted to their social context.	Elaborate on healthcare professionals' responsibilities in the patient-centred paradigm and reflection on their own barriers and pitfalls, that inhibit autonomy-support of patient's self-management.
Problem and needs analysis	Analysis of predictors for actual SMS among nurses (N=477) (Duprez et al., 2018). Explorative qualitative research using interviews (N= 16) and focus interviews (N=19) with nursing teachers of a Belgian university college.	Nurses' actual behaviour in supporting patients' self-management was predicted by a positive attitude towards SMS, a feeling of self-efficacy, and training in SMS (explaining 52 % of the variance in nurses' behaviour). Necessary elements a training for nurses should encompass: (a) building attitude and vision; (b) training actual skills with an active follow-up on students' skills; (c) providing practice with real or simulated patients; (d) ensuring accurate feedback on the performance of the student, preferably by video-feedback; and (e) helping students reflect on struggles they may have in applying person-centred care in practice and handling conflicts with more 'traditional' vision on taking care.	Focus on attitude, motivation and vision. Focus on acquiring skills to interact in an autonomy-supportive and structuring way. Gradual build-up of the training intervention by starting with vision and attitude of SMS, to bring knowledge into practice and reflect upon possible barriers and pitfalls. Working with own case material. VIG feedback on real or simulated patient-nurse interactions.
Intervention design	Cyclical procedure of testing, re-testing and evaluation through focus group interview with 5 trained groups.	See Table 2	See Table 2
Intervention validation	Evaluation of the satisfaction or frustration of trainees' basic psychological need in 7 trained groups.	See Table 3	n.a.

Table 2

Interrelated coded themes, description of content, rationale for revisions, and clarifying quotes of the building blocks of the basic training and video-interaction guidance of the self-management support training intervention

		Description and rationale for revisions	Building Blocks Training and adjustments made during the different versions	Quote
Autonomy				
	Satisfaction			
	Own goal setting	Trainees are invited to set their own goals during the different parts of the training. Explicit tailoring of the training to the trainees' individual learning objectives strengthens the learning and the feeling of autonomy.	<ul style="list-style-type: none"> • Personal goal setting before the start of the training • Personal target(s) in the role play • Selection of video fragment by trainee (not by trainer) (during video-interaction guidance (VIG)) • Before the start of the training, trainees were requested to complete a survey on their SMS- and ABC-communication style. Their personal results were discussed during the first and second part of the basic training module. 	<i>"Because I was able to choose myself what things I wanted to learn about. And then, well, I had the opportunity to watch my own video and then like: 'Ah well, I don't really know what I would do here.'. And you pick that out. And otherwise something else might be picked out that you perhaps also might learn from, but not the things you ask yourself the most questions about or feel most uncomfortable with. Or, well, I think that's exactly what I really like, the part where you have concerns about."</i>
	Working with own experiences and case materials	Trainees are encouraged to start from their own experiences, cases and are asked to reflect upon their current SMS- and ABC-skills. This takes into account the context in which the trainee will have to establish what is learned.	<ul style="list-style-type: none"> • Working with own case material to detect own pitfalls • Personal overview of ABC- and SMS (5A's) communication skills • Role play starting from own cases 	<i>"Those kind of things. You add something of yourself; sure, I haven't been employed yet, so how can I do that correctly in practice later on? There's something of your own personality that you get started with. And that doesn't always happen."</i>
	Asking opinion and respectful interactions	Trainees opinions and preferences are taken into account and respectfully integrated in the training with enough patience to actually elicit	<ul style="list-style-type: none"> • Group discussion • Building own definition of SMS • Providing enough time during exercise and discussion to solicit trainees' opinions 	<i>"Yeah, and she actually always asked our opinion first, and then she addressed certain things herself and certain other things less (depending on the interest of the group - added). That was cool." "They were asking themselves, right: 'Do you think it's OK that we'll do it this way?'; so that</i>

<p>Interactive and playful</p>	<p>trainees' opinion. This strengthens the reflective process and the feeling of autonomy. The training is a co-creation process in which opinions, experiences and preferences of the trainer and the trainees take an important place and co-determine the content and training materials.</p>	<ul style="list-style-type: none"> • Working with video material of trending soaps • Statements game • Back-to-back interviewing • ABC-skills drama play 	<p>input was definitely there. They also remained silent for a while, to invite us to express ourselves."</p> <p>"Or like about the Red Devils (national soccer team). I'm someone that comes from a home-nursing background. So I'm someone who's very actively at work. It's much harder for me to keep focused when things are (more) quiet. I also like the interactivity, the same as with the conversations here."</p>
<hr/> <p>Frustration</p>			
<p>Ignoring practical issues and/or reluctance regarding VIG</p>	<p>Some trainees experienced practical difficulties to find a (simulated) patient or getting approval for the VIG. Other trainees felt reluctant about the VIG sessions.</p>	<p><i>Adjusted by changing the instruction of the VIG (making it more clear) and give trainees time to discuss practical issues in group. More attention was paid to provide a rationale for the VIG and trainees' negative emotions and possible reluctance regarding the VIG preparation was welcomed and discussed in group.</i></p>	<p>"And we already indicated that a bit then, when it was suggested, 'Oh dear, that'll be difficult.'. But well, there wasn't really a response: in what other way can we address that. No, we just had to try that and just had to do it. While we, the whole class at that time, felt like 'No, we'll never get that accepted at work.'."</p>
<p>Limited alignment with workplace context and/or own experience</p>	<p>Some trainees experienced the training as too generic and felt less connected with the content as it lacked alignment with their specific work context.</p>	<p><i>To increase recognition and attunement with the own working experience, general cases and examples were adapted to the work context of each training group.</i></p>	<p>"Our role now is to explain that (heart-failure) to the people, right. And actually, well, it's, the clothes-hanger is there right, but it doesn't get applied to heart-failure, what this is actually all about."</p>
<p>Trainees' preparation at home not fully used in training</p>	<p>Some trainees mentioned that the survey on their SMS- and ABC-communication style, they had to prepare at home, was not fully used during the training.</p>	<p><i>In the revised training we took more time to reflect upon individual survey results on SMS- and ABC-communication style: (a) we asked participants to start from their results (strengths and opportunities) to practice relevant topics in the role play exercises and (b) we asked trainees to formulate personal learning goals (taking the content of the training into account.)</i></p>	<p>"And we also had to complete that exercise, to describe what style (you had), too little was actually done with that."</p>

Satisfaction			
Authenticity trainer	Trainers exhibit some of their own shortcomings and pitfalls in supporting patients' SM and are willing to share this vulnerability in order to elicit a safe atmosphere to practice, and foster introspection as role model.	<ul style="list-style-type: none"> Active participation of the trainer in the role play. Trainers anecdotal exhibit their own shortcomings, struggles and pitfalls. 	"...show a bit of their vulnerability, like 'Well, see, we want to try this. We're happy that you want to do that with us.', engaging in an open communication immediately."
Open and confidential atmosphere	Openness and confidentiality are key elements for bonding in trainers and trainees.	<ul style="list-style-type: none"> During the training intervention, the trainer made room for trainees' remarks and suggestions. Specific declaration was made by the trainer that none of the experiences/stories/cases trainees witnessed could leave the training room. 	"I've always thought that during the lessons, the atmosphere was always very pleasant. That's what I thought, the way the lecturer gave this and the openness that was always there and, yes, I especially found the openness very very pleasant."
Involving everyone and creating a feeling of togetherness	During all exercises it was made sure that every trainee had his/her job to make the exercise work to ensure meaningful partnerships in the training.	<ul style="list-style-type: none"> Alternation of roles/'jobs' in the exercises. Asking opinion Set-up of trainer and trainees around the table as 'equal' participants 	"I also thought it was cool that we could discuss that case back to back. How we turned towards one and other, how open we became and how we made a connection there. I thought that was a cool exercise. Better than, like, an ordinary conversation exercise." "...sometimes also that it got confirmed: I'm struggling with that or I would have said it this or that way, or well..."
Frustration			
Insufficient introduction of the trainer	In the first training group, trainers did not introduced themselves, neither they provided time for the trainees to get acquainted.	<i>In the revised training room was made for an innovative introduction exercise to gain acquaintance with both trainers and trainees.</i>	"I kind of missed it, that we didn't get to present ourselves."
Competence			
Satisfaction			
Gradual structure of the training	To meet trainees' competencies building process, the training intervention started with vision on SM(S), proceeded to attitude	<ul style="list-style-type: none"> First session (4 hours) started with vision & attitude development towards a broad perspective on self- 	"Yes, and I thought it was also good that it was just, well, you already had advice and methodologies from the previous lessons. You had been able to apply that a few times, within those lessons and only then you had

	and ended with gradually more difficult exercises.	management, framed within SDT.		to... It would've been different if there would've been that video in the first lesson (i.e. the preparation for the video interaction guidance training - added), and now we're gonna show you how it actually needs to be done. Well, now you could really apply what you had learned, at least try to apply it."
		<ul style="list-style-type: none"> • Second session (4 hours) comprised of ABC communication skills, as well as classroom practice of these skills, framed within the 5A's. • Third and fourth, trainees were provided individual feedback on their SMS-performance and ABC communication skills through video-interaction guidance. 		
Alternation of didactic methods	During training different types of didactic methods (including i.e. group discussions, role-play, different types of media...) were used to convey the content of the training program in an interesting and stimulating way.	<i>Examples of the alternation of didactic methods can be found throughout all other building blocks.</i>		<i>"Well, that it wasn't just the conversations all the time. That also makes it for us... We already have to have a lot of conversations, there will be even more but I mean. That is nice (hesitates) how you, through learning something else that is also interactive, besides the conversations. That's a nice variation, I think."</i>
Support by additional tools	To give trainees some grip, practical tools to support case solving patients' needs, desires, roles... were provided to trainees.	<ul style="list-style-type: none"> • Self-management in different life domains communication tool • Decision balance tool 		<i>"What also stuck with me was like a file that you can put in front of the patient then, and that (s)he can then indicate what (s)he wants to talk about. I thought that came in handy to just take along into practice. Well, for example, sexuality and the like, is also a part of that, I myself sometimes find it difficult to apply that, but by doing so the patient can address that. I thought that was, well, a practical tool."</i>
Promoting introspection	The didactics used in the training were designed to elicit trainees' introspection of their practice with patients, their styles and pitfalls.	<ul style="list-style-type: none"> • Reflecting upon personal results on SMS- and ABC-communication style survey • Working with own case material to detect own pitfalls • 'zooming-in' and reflecting on (personal) difficulties during role- 		<i>"What I really liked was that scheme in the beginning (i.e. personal results on the ABC support communication questionnaire trainees had to fill in before the start of the training - added). That it says a great deal about the fact that you yourself know where you're starting from. Because that is, sometimes there are things that you're not really aware of. I do think, that the survey was nice to know: that's</i>

play exercises and the VIG

Time to practice	To practice new insights, skills etc., trainees were provided sufficient time to practice.	Examples of the 'time to practice'- dialectics can be found throughout all other building blocks.
Supportive and informational feedback and actionable tips and strategies	To facilitate active learning, trainers took time to provide specific (individual, process-focused) feedback during role-play exercises and VIG.	<ul style="list-style-type: none"> • Providing specific (in contrast to generic) feedback • Providing process feedback (in contrast to person-focused feedback)
Safe environment to fail	To secure trainees and support their feeling of competence (instead of competence frustration)	<ul style="list-style-type: none"> • Practice in small groups of 2-4 trainees for role-play exercise • Stop-technique when trainee felt he/she had a black-out • Trainees get first and last 'word' during role-play and VIG • Installing an atmosphere of 'learning-by-mistake' instead of 'show-off your best performance'

my starting-point and that's where I, well, that is, well, my problem lies, perhaps a big word but there are my pitfalls. And then you know that about yourself and that's something you didn't know."

"Yes, just everything from... Yes, I was stuck in, in a conversation and then talking about it, things came up that I actually didn't even think about at the time. Like, ah yes, okay, there I am... Well, then you do think about it that way."

"I found it very confronting that video-message. Well, they normally do say: you have to do this and that. But now, I myself could analyze it a bit, like: (.) yes, this, well, this and that, too many silences, or I don't pose the right questions or that, that at that moment things go wrong. So I did find it nice to see it for myself."

"So yes, you might think 'I know that'. But in practice it's something else. So I think those exercises, also with those cases, are indeed a bonus."

"It was actually constructive feedback, so well, yes. You think: 'I'm being grilled here.' but actually, once you start, it isn't like that. It really is meant to learn from it and good feedback actually."

"Yes, I never, for a moment, felt under attack. Well, like, oh no... Also a lot like: OK, I can do something with that, I'm also going to use that for other conversations."

"I also liked it, that she said that. No one has ever said that before, if you have the feeling like 'I can't manage for a while anymore.' or you get stuck, then stop. And I found that to be a very pleasant feeling. That they said that, like 'it's OK if it doesn't work out anymore, then stop and have a look together how to proceed and then you go on'."

"I also felt that there was an atmosphere like: that you could not make any mistakes. Well, there wasn't any finger-pointing or that this conversation was better than the other, or..."

"You never felt that you were judged or that

you did something wrong or that you (.) No, it was like: we're looking for, a better way and it also felt like it wasn't about 'Ah, you didn't do that well.'"

Frustration

Not enough aligned to trainees' differences in baseline knowledge	Trainees differ in their basic of previous education as we grouped healthcare professionals with different backgrounds in one training group.	<i>In the revised training we took more time to explore trainees' education background and try to differentiate in depth and length of theory and exercise depending on trainees' baseline knowledge.</i>	<i>"We're all coming from different disciplines. And then there's variation. Sometimes we're like 'Oh, we've seen all that.'. And then they have something like 'Oh, we've already had that.' but then we didn't. I think that as a lecturer it's also (hesitates) difficult to compromise. Unless you really know it in advance."</i>
Taking too much time for something that is clear	In some exercises individual preparation time was given to allow everybody to find solutions. Yet, this made some exercises too long-winded.	<i>Adjusted by shortening some exercises to directly pass through in-group discussion without individually preparing time.</i>	<i>"If you had read it for yourself once and said 'We now take 3 of them?', it would have been all right too."</i>
Not enough time to practice all phases of SMS	During the first training session we ran short of time which gave trainees less time to practice later phases of SMS (assist and arrange phase).	<i>Exercises of the later phases of SMS (assist and arrange) were given more time in the revised training intervention.</i>	<i>"Perhaps a little more like the last thing we did: a caregiver and a patient, like assisting and arranging and such, because it's actually..., well, our goal our domain, I'll put it that way."</i>
Video-interaction with too familiar simulants is not desirable	To allow every trainee the experience of VIG, it was permitted to prepare a video with an acquaintance familiar to the trainee. Yet, sometimes it made the patient-professional interaction less realistic as the trainee felt inhibited to take a professional stance.	<i>In the revised instructions for the VIG preparation, trainees were allowed to select a familiar simulated patient on condition they had a conversation about a real health-related problem with this simulation patient.</i>	<i>"It was difficult because, well, the person with whom you had to make that video with was (for some) a family-member or a friend or a girlfriend or no matter what. But they know you in very different way. All at once, you have to behave in a professional way."</i>

Table 3

Means, standard deviation and t-statistics of need satisfaction and frustration during the basic and video-interaction guidance training of trainees who participated in both modules (N=24)

		Basic training Module		Video-Interaction Guidance Module		<i>t</i> (1,17)	<i>p</i>
		<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)		
Autonomy	satisfaction	4.09	(.44)	4.10	(.60)	-0.06	.954
	frustration	1.76	(.69)	1.75	(.79)	.10	.919
Relatedness	satisfaction	3.84	(.60)	4.14	(.73)	-1.93	.072
	frustration	1.32	(.30)	1.43	(.54)	-1.00	.332
Competence	satisfaction	2.68	(.53)	3.68	(.65)	.00	1.00
	frustration	2.20	(.66)	2.22	(.56)	-.13	.902

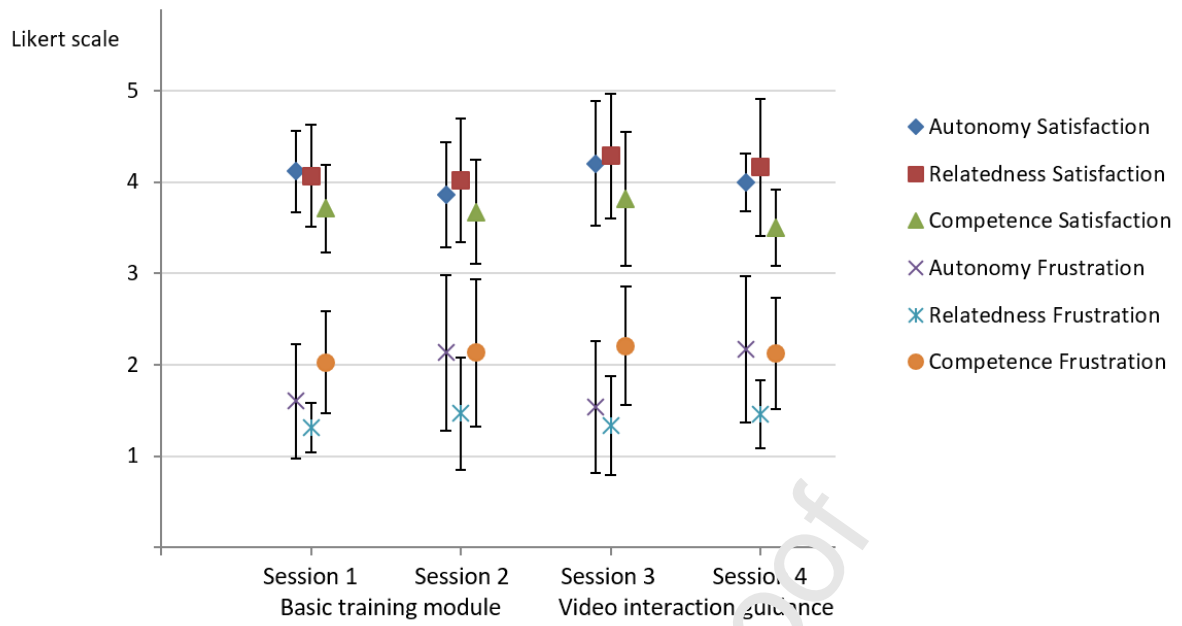


Figure 1. Mean scores (and standard deviations) of need-support satisfaction and frustration of four sessions (N=69)

Author statement:

None of the analyses or findings reported in this paper has been reported in prior work and this paper is not being simultaneously submitted elsewhere. All of the authors have made a significant contribution to this paper. They agreed to the byline order and to submission of the manuscript in this form.

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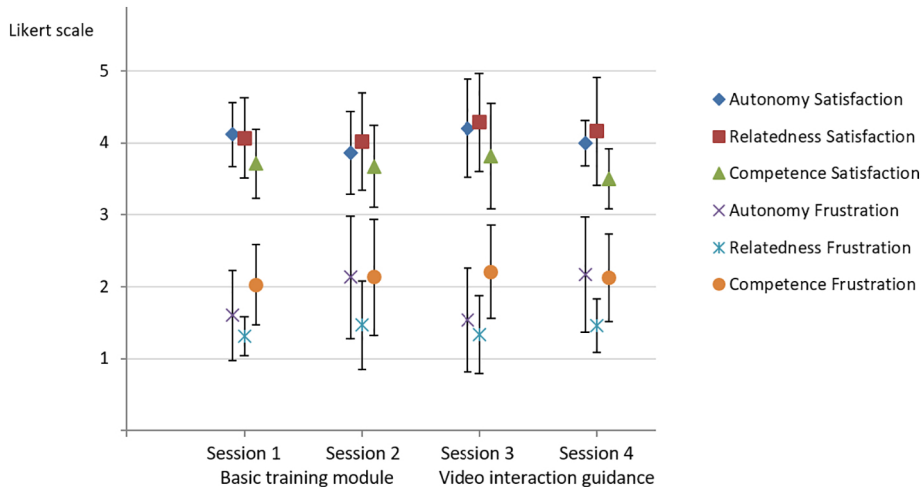


Figure 1