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Lyngbye, Marie Charlotte; Møller, Anders Kalsgaard

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**DFL**

# Motivational Factors for Empowering People with Diabetes and the Influence of Perceived Self-Efficacy

**MARIE LYNGBYE****ANDERS K. MØLLER** 

\*Author affiliations can be found in the back matter of this article

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## ABSTRACT

In this study, we apply theories about self-efficacy, empowerment and motivation to account for the phenomena that people with diabetes Mellitus type 1 express as being influential for people with diabetes' behaviour regarding self-regulation. They must make significant changes to their lifestyle, to keep the disease stabilized. The changes can be cumbersome and hard to implement why people with diabetes receive training in self-regulation. For many people it can be challenging to comply with the recommendations. We conducted field observations and surveys to understand how people with diabetes experience their perceived self-efficacy, and what motivates them to perform blood sugar measurements and physical activities. We found differences in people with diabetes' ability to follow the recommendation based on gender, motivation, and their level of self-efficacy. We also found indications on how a motivational dialog may affect both professionals and people with diabetes. Thus, we suggest that guidance of people with diabetes should be based on an emancipating motivational approach such enabling the possibility of strengthening the people with diabetes' motivation and thereby their self-efficacy. Through these processes, the people with diabetes may become able to achieve a higher level of health literacy such experiencing a better outcome of their self-regulation. With this paper we contribute to the contemporary overall knowledge about the diabetes field, such our investigation focus on people with diabetes ability to act upon information provided by healthcare professionals and how to best approach the issues people with diabetes experience as being essential for their general well-being and everyday lives.

## CORRESPONDING AUTHOR:

**Marie Lyngbye**

Aalborg University, DK  
[machly@hum.aau.dk](mailto:machly@hum.aau.dk)

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## INTRODUCTION

Being a person with diabetes type 1 equals having to handle one's self-regulation. Once diagnosed, the person with diabetes will receive education about managing self-regulation. This education is administered at the hospitals, such the persons with type 1 diabetes receives education about lifestyle, food, physical activity, measurement of blood sugar, and how to administer the insulin. They also receive education about diabetic comorbidities and how to delay and/or prevent them from occurring (Aalborguh, s.d.). If these recommendations are followed, a person with diabetes should be able to live relatively symptom-free (Sundhedsstyrelsen, 2020). Meeting these expectations presupposes that the person with diabetes undergoes a comprehensive lifestyle change, learns new skills regarding diabetes care, and acquires new knowledge about the disease, thus, it becomes a transformative process for the person with diabetes to acquire and live up to the healthcare systems expectations. Despite well-established rules and objectives from the healthcare system, professionals continuously experience that people with diabetes do not comply with them (Heisler et al., 2002; Johansen, and Mouritsen, 2019).

According to Funnell and Anderson (2004), the healthcare system is designed to provide immediate symptom treatment and not to handle the treatment of chronic diseases that require the development of cooperation between patient and professionals. To succeed with self-treatment, the person with diabetes should be able to make choices and set goals based on his or her own lifestyle priorities and preferences. It is therefore, not considered sufficient to ask people with diabetes to comply with a set of rules regarding disease treatment. They should be primed to be able to reflect on their own choices and the influence they have on their disease, to be able to make the best decision on their own behalf in relation to their desired lifestyle (Funnell and Anderson, 2004). Thus, empowerment is achieved and is defined as 'helping patients discover and develop the inherent capacity to be responsible to ones' own life' (Funnell et al., 1991: 37). Empowerment should be considered as a philosophy and not a treatment strategy, embracing this philosophy presupposes that both professionals and patients engage in the treatment collaboration. Miller and Rollnick (2013) presented the concept of motivational interviewing which is considered a strategy to promote empowerment in health work. The motivational interview builds on the argument that, when people formulate goals for themselves, they possess an inherent motivation leading them to achieve their goal to a higher degree compared to if the goal was presented by someone else (Miller and Rollnick, 2013). This strategy is a dialogical tool that professionals can use when meeting patients. The tool provides an opportunity

for the patient, in collaboration with the professional, to explore their own priorities and goals regarding coping with the disease and their desired lifestyle. The strategy does not focus on the disease but the person. In the dialogue, the professional has a role as a guide where he/she and the patient explore opportunities and barriers to behaviour change, frame living conditions and define goals. The professional participates as an expert in health, but not as an expert regarding the patient's lifestyle and desires, thus the professional should refrain from advising and setting goals unless the patient requests this. The method is based on the feeling of curiosity, interest, and empathy, which should primarily be the patient's experience. To awake these feelings presupposes an experience of engagement from both patient and professional, such enabling a possibility for collaboration (Miller and Rollnick, 2013).

In this study, we focus on what can motivate people with diabetes to a healthier lifestyle in coherence with the recommendations and what professionals can do to support this and empower people with diabetes to make better lifestyle choices?

## DIABETES AND HEALTH LITERACY

The fact that it can be a challenge for people with diabetes to comply with the recommendations for diabetes care such adhering to their treatment plan, was confirmed by the preliminary results of this project conducted in 2018 (Lyngbye, 2018a). Through observational studies, and surveys directed to the people with diabetes type 1 it became clear that it is challenging for some people with diabetes to manage their disease within the frames of their everyday lives. One of the most essential challenges we discovered, was the tendency to forget or choose not to do the blood sugar measurements.

Being able to self-regulate diabetes presupposes that the people with diabetes master the ability of measuring their own blood sugar minimum four times a day and inject insulin according to the blood sugar value. A diet in accordance with the recommendations as well as performing physical activities is part of the recommendations that exist within self-regulation of the disease.

Making behavioural change and maintaining the new lifestyle requires a high level of health literacy defined by World Health Organization as 'The cognitive and social skills that determine the motivation and ability of individuals to gain access to, understand and use information in ways that *'promote and maintain good health'* (Health promotion, 2021). In the specific frame within diabetes, health literacy can be translated into people with diabetes' motivation to do blood sugar measurements, understand the levels, use the information to adjust, manage, and adhere to the set of treatment recommendations. To obtain and maintain a high level of health literacy requires a high level of

motivation and readiness for change. Not all people with diabetes possess the ability and competencies to make these changes. Some experience being held back due to a great desire of simply being normal, others experience stigmatizing, and some develop a fear of failing, such as becoming afraid of going to the doctor. Some simply just forget to manage their diabetes because of them being occupied or focused on something else (Krag et al., 2017; Lyngbye, 2018b; Speight et al., 2012). One of the factors within self-regulation, people with diabetes need to be aware of, is the recommendation regarding physical activity, which is a helpful method to enable the possibility of maintaining a stable blood sugar and a normal BMI (Carral et al., 2013).

## MOTIVATION

Bhaloo, Criscuolo-Higgins and Juma (2018) conducted a study examining which motivational factors influence men and women with diabetes. Their results showed that close friends and relatives is of great importance for motivation in both men and women. Women are mentioned as the most prominent family members in terms of empathy and support in relation to family members' diabetes, where both children and husbands mention their mothers/wives as being a great support. Conversely, women in marriages experience that they do not receive support and empathy from their husbands in dealing with diabetes. People with diabetes who did not experience support from the family reported a lower score on self-reported self-efficacy in relation to diabetes than those who experienced support from the family. Empathy from one's own doctor, showed an effect on especially women's motivation. If they experience the doctor as encouraging, guiding, caring, etc. it will strengthen their motivation to master their diabetes. Men were motivated by their own doctor providing tangible methods that could help them achieve a better state of health as well as facts about the disease. The respondents value time with their own doctor higher than with other professionals, e.g., dietitians and nurses, this was true for both men and women (Bhaloo, Criscuolo-Higgins and Juma, 2018).

Self-Determination Theory (SDT) developed by Deci and Ryan (1985) distinguishes between two types of motivation. The first is called extrinsic motivation referring to a person engaging in an activity, with the expectation of a secondary outcome. The focus here is on external goals or rewards. The other type of motivation is intrinsic motivation. This type of motivation refers to a person engaging with an activity because one finds it enjoyable or interesting. The focus is purely within a person's self-interest such that there are no expectations of a reward nor punishment for engaging in the activity (Deci and Ryan, 1985). Since individuals are attached to various types of subjects and things, not everyone can be equally intrinsically motivated within the same activities.

Competence, autonomy, and relatedness is what Deci and Ryan (1985) view as factors for native psychological needs that enhance intrinsic motivation when fulfilled at the same time (Deci and Ryan, 2000). From an SDT perspective, intrinsic motivation becomes stronger when an individual experiences fulfilment of the before mentioned native psychological needs, whereas external goals have a negative impact on an individual's intrinsic motivation. Hence, an individual's focus changes from wanting to do something into gaining a reward.

Deci and Ryan's (1985) Organismic Integration Theory describes how humans can transform extrinsic motivation into intrinsic through the internalization process. The theory clarifies the various types of extrinsic motivation and how they manifest in human behaviour according to context (Deci and Ryan, 1985). The authors developed a taxonomy listing six types of motivation ranging from amotivation where people lack motivation and intention to act to intrinsic motivation where people perform activities because they want to do it without any expectations of a reward. This shows how motivation and behaviour are linked. Motivation should be looked upon as the degree of which an individual accepts the task as a part of oneself. The feeling of competence is highly related to self-efficacy defined as '... people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives' (Bandura, 1994: 71).

## SELF-EFFICACY

Self-efficacy beliefs determine how people feel, think, motivate themselves and behave (Bandura, 1994). Four psychological processes are identified as areas where the experienced degree of self-efficacy affects the human functioning these being:

- **Cognitive Processes**

The stronger the perceived self-efficacy, the higher goals people set for themselves and the firmer is their commitment in achieving these.

- **Motivational Processes**

Most human motivation is cognitively generated. People motivate themselves and guide their actions anticipatorily by the exercise of forethought, such as assessing what they themselves believe they can do. The higher experience of perceived efficacy, the more people think they can accomplish which leads to a strong motivation.

- **Affective Processes**

Perceived coping self-efficacy regulates avoidance behaviour and anxiety arousal, the stronger the sense of self-efficacy the bolder people are in taking on threatening activities. Perceived self-efficacy affects every phase of personal change, from start to finish, especially affecting how one promotes and maintains one's health.

### • Selection Processes

When making life choices a strong sense of perceived self-efficacy provides a strong occupation of interest, which structure a good part of peoples' lives providing them a strong source of personal growth.

A strong sense of self-efficacy enhances humans' well-being in many ways. Individuals with a high sense of efficacy approaches difficult task as a challenge to be mastered, rather than threats to avoid. When experiencing failure these individuals quickly recover, attributing the failure to insufficient effort, or lack of skills which are acquirable. Such an efficacious outlook fosters intrinsic interest and deep fascination in activities and pursuing personal goals. Individuals with a reduced sense of efficacy, avoid difficult tasks, which they think of as personal threats. When confronted with a difficult situation or task, they focus more on their lack of skills or the possible bad outcomes, rather than focusing on how to solve the task or situation successfully. To change the behaviour of people with diabetes, it is therefore necessary to understand what motivate people with diabetes to take the necessary actions and ensure that they can do so while maintaining a high level of self-efficacy. Bandura (1994) list four ways in which a person may develop a stronger self-efficacy: 1) experiencing the overcoming of obstacles, 2) witnessing other people like oneself succeed, 3) experiencing other people believing in one's ability to perform, and 4) reducing stress signals such avoiding a misinterpretation of one's psychological state.

### AIM

Previous studies conclude that people with diabetes often lack motivation and/or understanding of their disease and such the need for blood sugar measurement and physical activity (Heisler et al., 2002; Johansen and Mouritsen, 2019). This calls for methods on how to empower people with diabetes to enable them to obtain a strong base of health literacy through the process of motivation and self-efficacy. If a person with diabetes ignores the disease, and with it, fails to self-regulate, the disease can result in various kinds of late sequelae. We are interested in knowing which factors are influential on people with diabetes motivation and behaviour regarding their self-regulation and performance of physical activity. We seek a deeper understanding of people with diabetes' motivational level within Deci and Ryan's (1985) taxonomy and their perceived self-efficacy level according to Bandura (1994). Likewise, we also seek a deeper understanding on how professionals approach people with diabetes during an encounter at the hospital, and if they are successful in establishing a collaborative environment, in which both a person with diabetes and a professional can engage (Miller and Rollnick, 2013). The methods used in this study provide us with data according

to the before mentioned phenomenon of motivation and self-efficacy. Through a hermeneutic-phenomenological approach we seek to understand the people with diabetes' own interpretation of obstacles and what motivates them to follow recommendations for their diabetes care. Furthermore, we look at their interaction with the healthcare system and the professionals to understand how they can support people with diabetes. Using the principles of Grounded Theory, we gradually build knowledge from observations and information from surveys about how people with diabetes are motivated and which factors that are essential to notice dealing with a potential enhancement of their health literacy.

## METHODS

The empirical evidence underlying this study was collected using mixed methods comprised of field studies and an electronic survey. The target group for this study has been Danish adult people with diabetes type 1. The purpose was to understand: 1) how do people with diabetes express their perceived self-efficacy and what motives them to perform blood sugar measurement and physical activities? 2) How are people with diabetes experiencing their everyday life in connection with the fulfilment of the blood sugar measurements, and how does it affect their motivation and self-efficacy? 3) How do professionals at the hospital conduct their conversations with people with diabetes during a consultation?

### SURVEY

We designed a survey for exploring the respondents' perception of their self-efficacy and motivation for their adherence to self-regulation recommendations. We asked them why they were being physical active, at which intensity level (low, moderate, or high) they were performing an activity, how many times a day they were doing their measurements, to what purpose they were being physical active, what they were feeling during the physical activity, and how strongly they perceived these feelings on a Likert scale ranging from one to eight. The respondents were presented with segmentation questions using the division from Danish statistics (Danmarks Statistik, s.d.) regarding their education, income, residence, age, and type of diabetes. The survey was sent by email to a group of respondents (n = 105) whom the investigators had contacted in the early phase of the project. The survey was active for a period of two weeks, which resulted in 23 valid responses.

### FIELD OBSERVATIONS

We conducted 13 field observations at the Endocrinology Outpatient Clinic (EOC), at a Danish hospital in Northern Jutland. Eight consultations between diabetes patients and endocrinologists, orthopaedic surgeons, nurses,

and other professionals were conducted at the interprofessional department of the EOC. The hospital report that these patients in general are poorly regulated. A consultation in this department is approximately 30 minutes and during this time a patient may be consulted by professionals of all the beforementioned healthcare clinicians.

Five consultations between endocrinology nurses and patients attending their annual check-up at the daily outpatient clinic (DOC) were also conducted, the hospital reports that patients who attend consultations at the DOC, often are successful with adhering to the recommendations of self-regulation. A consultation in this department is approximately 40 minutes and facilitated by an endocrinological nurse.

## ANALYSIS FRAME

The qualitative data extracted from the survey and the narratives from the field studies were analysed using the principles of Grounded Theory (Chun Tie, Birks and Francis, 2019). The field observation data was documented as written narratives and sketches done by the researchers. The quantitative part of the survey is presented using descriptive statistics and the qualitative part is analysed using the principles of Grounding theory along with the field observations. The analysis process was initiated by open code, which creates an overview of data, thereby initiating a preliminary contextual classification. It then continued with axial code, where clarification of contexts was systematized into main and subcategories. Finally, the process continued with selective coding where we attempted a clarifying of contexts between the general categories, allowing us to focus on the contexts in a more abstract manner. For each of the 13 observations and for the qualitative data from the survey, data was analysed using Launsøe, Olsen and Rieper (2011) analysis scheme. Thus, we identified, relevant informants' citations, main and subcategories, the context of the phenomenon, relevant issues of the phenomenon and the connectivity with theory. As Grounded Theory is an ongoing process, the interpretation and analysis have taken place on an ongoing basis with the aim of forming an overall knowledge or theory based on the underlying observations and survey data.

In the following sections we first present the results from the survey and observations. We then proceed to analyse the data to describe the phenomenon and introduce explanations for these through the theoretical framework. By applying Deci and Ryan's (1985) taxonomy we analyse how the relationship and conversation between the endocrinologist and the patient in selected cases from the observations affect the motivational factors and their perceived self-efficacy (Bandura, 1994). Based on the analysis we discuss how

the professionals can empower people with diabetes using the motivational interview (Miller and Rollnick, 2013) and how this approach depend on and affect their perceived self-efficacy (Bandura, 1994).

## RESULTS

### SURVEY

#### Respondents

Twenty-three respondents answered the survey, distributed with mixed affiliations within: age, level of education, income, residence, and gender. Thus, forming a heterogeneous composition with differentiated affiliations to social classes. The respondents form a homogeneous group in relation to the type of diabetes, where everyone had diabetes mellitus type 1, with a varying timeframe for having been diagnosed.

#### Adherence within measuring of blood sugar recommendation

Four percent of the respondents' measures blood sugar one time per day, 13% report to measure blood sugar 2–4 times per day, 65% report that they measure minimum 4 times per day and 17% of the respondents' reports varying numbers up to 10–12 times per day, and down to once a week.

#### Physical Activity

Ninety-one percent of the respondents reported being physical active with 65% wanting to increase their activity level. Twenty-six percent report performing physical activity at a moderate level seven times a week. Twenty-one percent report registering blood sugar values during the physical activity of which 58% reported registering both before, during and after the physical activity. Of the before mentioned 58% who registers both before, during and after, 17% did so when performing physical activity at a high level, and 21% did so during physical activity at a moderate level.

The qualitative data showed a general positive perception of the people with diabetes adherence within their self-regulation, as they report not having any complications with it. '...no problem it is all routine' (respondent survey, 2019) When asked about their adherence within physical activity, they report a lower tendency to adhere within the recommendation.

#### Motivation and behavioural factors

From the qualitative data it is shown that women are often physical active in a social setting together with people from their family or close friends. The men express that type of behaviour, knowledge of how to adhere and the possibility of attaining goals are motivating factors, and that it varies if they prefer being alone or together with others when being physical active. Both genders experience a high level of positive feelings and proudness

when being physical active: 'I get happy, and the brain sends wonderful hormones into the bloodstream.' (respondent, n 3, survey, 2019), 'I'm getting healthier' (respondent, n 4, survey, 2019). They also experience a minor degree of negative feelings as sadness and failure when meeting obstacles which conflicts with their diabetes during their physical activity. 'I have struggled with high blood sugar levels today they would by no means decrease lower.' (respondent, n 5, survey, 2019).

## FIELD OBSERVATIONS

All 13 observations were included in our initial data-analysis but in this paper, we have highlighted three cases to exemplify our findings. Two cases from the interprofessional department of the EOC and number three from the DOC. While differences were seen from case to case these observations were picked as they provided good examples of the overall findings.

### Observation one

We observed a consultation between a woman with diabetes and an endocrinologist. The woman's husband also participated during the consultation. For a long period, the woman had experienced symptoms resulting from poorly diabetes regulation. During the period, she had failed to measure her blood sugar level and did not understand the need for it. She simply wanted the doctor to give her a higher dose of insulin because she felt uncomfortable. The endocrinologist tried to explain the link between knowing the blood sugar values and the administering of insulin, such for example the necessity of knowing the long-term blood sugar values (HbA1c) which is used for calculating e.g., the need for insulin. She still did not understand the link between the two and just wanted more insulin. Her husband also expressed the need of increasing the insulin, like his wife, he did not understand the purpose of knowing the blood sugar levels. The endocrinologist once again tried to explain the link between knowing the HbA1c level for the purpose of administering insulin, but the married couple still did not understand the link, which resulted in the endocrinologist directly instructing them to adhere with the recommendation of measuring at least four times a day. While the husband accepted the endocrinologist's instruction, the wife was still in doubt.

### Observation two

The next observation was also a woman with diabetes, who had experienced amputation of one of her legs due to poorly diabetes regulation and who was still not managing her diabetes. When the endocrinologist asked which diabetes medication she had prescribed; she did not know. She had forgotten to bring the medicine with her, and she had failed to measure her blood sugar levels for a long period, hence she did not know her HbA1c value. The endocrinologist told her that she was at risk

of losing her other leg due to not addressing her disease. This message resulted in the woman becoming nervous, as she did not want this scenario becoming a reality.

### Observation three

We witnessed a consultation between a man with diabetes and a nurse who was specialized within the diabetes treatment. He had had diabetes for many years, was a resource-full patient, well-regulated, good health literacy and completely adhering with the recommendations for treatment. He was equipped with a full-automatic insulin pump, which handled the administration of insulin and blood sugar values, such reminding him to deal with his illness. Though he had been well-regulated for several years, he had recently experienced becoming debilitated two times a week but could not identify the connection between behaviour and his diabetes. The nurse pulled data from his insulin pump and from the graphic view of the blood sugar level, she identified that the patient had a low blood sugar within a fixed timeframe two times a week, and therefore asked if he had begun some new activity. He replied that he had taken up tennis, an activity he had done before, was good at, and enjoyed very much, therefore he was nervous about not being able to play tennis any longer due to his low blood sugar levels. The nurse asked him if he remembered to adjust or disable his pump before playing tennis. He replied that he had not given it any thought as he was used to the pump administering his insulin. The nurse explained that if he failed to adjust or disable the pump, it provides the same dosage of insulin as usual. This will result in low blood sugar levels as the muscles also burn blood sugar during physical activity, such resulting in too much blood sugar being utilized.

## ANALYSIS

### OBSERVATION ONE – INTER-PROFESSIONAL DEPARTMENT OF THE ENDOCRINOLOGY OUTPATIENT CLINIC

The woman with diabetes seems to be amotivated for the activity of measuring her blood sugar, hence she expresses not having a need for it – nor wanting to do it. She is, however, able to express the need for insulin as a determining factor for her diabetes care. It appears as she lacks the holistic understanding of her disease, which prevents her from accepting the need for blood sugar measurement and the ability to administer the insulin accordingly. The endocrinologist provides instruction and explanation about the disease and the connectivity between blood sugar values and insulin but fail to give the woman the experience of empathy and caring for her well-being. It appears as neither the woman nor the endocrinologist is experiencing the feeling of engagement from one-another. This results in the woman not trusting the endocrinologist thereby

resisting in following the instructions he provides. During the consultation she experience an endocrinologist who simply just instruct her to do as he says, and she may feel that he is only seeing the disease and failing to recognize her as a person. The endocrinologist likewise experiences the woman as being uncommitted to her own disease, which may affect his motivation for guidance instead of instructing. Such the foundation for collaboration is unsuccessful, resulting in the woman continuing to be amotivated.

We interpret the woman as having a low level of health literacy. The lacking experience of empathy and caring from the endocrinologist cause her to develop a strong amotivation and with it, a low level of self-efficacy such her affective process, according to Bandura (1994), may be influenced negatively due to the fact that she tries to avoid having to do the blood sugar measurements.

The husband appears to be amotivated for blood-sugar measurements. It seems though that the instructions delivered by the endocrinologist are a motivating factor, as the husband change his attitude from not wanting to perform the measurements to agreeing to help her perform them. The experience of motivation and the fact that the endocrinologist's instructions make sense to him can thus give rise to the experience of engagement in both the husband and the endocrinologist. The husband can be interpreted as experiencing co-determination in the treatment process of his wife's diabetes, which then lead to a feeling of respect from the endocrinologist who thereby acknowledges the husband's indication of willingness to adhere to the recommendation about blood sugar measurements. Thus, he moves from commitment to focusing as the foundation for collaboration is created.

## **OBSERVATION TWO – INTER-PROFESSIONAL DEPARTMENT OF THE ENDOCRINOLOGY OUTPATIENT CLINIC**

This woman showed a low level of health literacy, which over time has caused her to fail to adhere with the recommendations of self-regulation, thereby causing the amputation of her one leg. The endocrinologists' point of her being at risk of losing the other leg, fosters extrinsic motivation hence the reward for her, would be to keep the other leg. This shows that the woman possesses an extrinsic motivation for blood sugar measurements but lack the competence and health literacy to perform the necessary actions in doing so. The lack of health literacy and competence may also affect her feeling of autonomy. Due to her not understanding how the regulation of the blood sugar affects her well-being, she does not understand how she can change her situation. Thus, her lack of competence makes her feel like she can do nothing to change her situation. The missing understanding has such caused her to fail with her self-regulation to a point where she may have just given up

trying to fulfil the recommendations due to a lack of education and support.

The experience of her losing her one leg, seems to have caused her to reduce her perceived self-efficacy. She has already failed to adhere with the recommendations, such her selection processes are affected as she has no interest in achieving a better health literacy and avoid having to make behavioural changes. Her motivational processes seem to be affected due to her losing faith in her own ability to self-regulate and her cognitive process affected in the way that she is not at all committed within adherence regarding the recommendations for self-regulation. As she is not able to structure her behaviour according to the recommendations within self-care for people with diabetes, she should receive education about the disease and behavioural change, thus enabling the possibility of her feeling competent and experience that she can in fact master her own disease. This way she would experience the overcoming of obstacles and strengthen her self-efficacy within the cognitive, motivational, and affective processes, leaving her capable of feeling autonomy and competent, which would affect her sense of intrinsic motivation.

The result of this woman failing with regulation of her disease indicate absence of attempting an emancipating approach in her health education. It also points to an unsuccessful attempt to create a foundation for collaboration between the person with diabetes and professional, leading to the woman taking a passive approach to her self-regulation. During the consultation, the endocrinologist only asks questions about medication, and blood sugar values, showing no curiosity about her personal wishes for lifestyle and treatment plan. The endocrinologist fails to give the woman an experience of empathy when presenting her with her being at risk of losing her other leg. Thus, the woman feels invisible as she is not seen, heard, or understood thereby, her motivation for acquisition of health literacy further reduces. Such the foundation for collaboration between the endocrinologist and the woman in this scenario has failed to be established, leading to both of them experiencing one-another as uncommitted. The endocrinologist as focused only on medication, the woman as not caring for her disease.

## **OBSERVATION THREE – THE DAILY OUTPATIENT CLINIC**

The person with diabetes expresses a great desire for playing tennis, which he enjoys and experience as a sport where he can use his tennis skills. We interpret his degree of motivation in performing the physical activity as fully intrinsic, hence he expresses his need for autonomy, competence and relatedness as fulfilled. His perceived self-efficacy we also interpret as strong, as he seeks a solution to his problem with the lowering of his blood sugar, such believing that the problem is manageable,

a behaviour, which according to (Bandura, 1994) often manifest in people with a strong perceived self-efficacy. A person with this level of perceived self-efficacy and motivation do not need to strengthen his desire, but to maintain it. The functioning of the insulin pump and how it functions, in this scenario, play a significant role within the patients' perceived self-efficacy and degree of motivation. The lack of his ability to identify what is causing the lowering of his blood sugar levels during the tennis match, points to a person with a perceived understanding of a good well-established health literacy. Nevertheless, the function of his insulin pump deceives him, letting him believe, that he is managing his disease, when in fact it is the pump. The missing link indicates that this person has become so dependent of his insulin pump that he no longer actively thinks of its' functioning but experiences it as part of his whole self. In this scenario, the nurse succeeds in establishing a foundation for collaboration between herself and the person with diabetes. As she asks questions about his behaviour and desired outcome, he experiences the nurse as being engaging, leading him to actively participating in the conversation. The curiosity and seeking of understanding him as a whole person, and not only focusing on medication, possibly create the feeling of a safe environment. Thereby, the man may trust her enough to express his vulnerability, as he reports not knowing what to do about the lowering of his blood sugar. He narrates not taking a liking to be dependent on other people, and that he is afraid of going into insulin chock, which has happened once before. Based on this information the nurse can explore the man's inherent knowledge and wishes for the future. They such move from the process of engagement towards the evoking process, as the nurse discover that he lacks knowledge about how the insulin pumps' default settings are disrupting his blood sugar values during the physical activity. Such she adds additional knowledge to the man's awareness, as she assesses him as having the knowledge and ability to handle the new information.

### Survey

Three distinct problems in adherence with the recommendations during physical activities were identified through the qualitative data namely, 1) Forgetting dextrose, 2) Adjustment of insulin pump and 3) Forgetting blood sugar measuring during the physical activity. The respondents report that, when forgetting to comply within these themes, they experience developing a low blood sugar, which often manifest as fatigue or muscle weakness. Forgetting dextrose or other fast-absorbed food deprives them the possibility of adjusting their blood sugar balance should it become low, this way the respondents experience a prolonging of the low blood sugar symptoms. A person with diabetes type 1 who utilizes an insulin pump during physical activity

must remember to either disable or adjust the amount of insulin the pump inject. If the pump injects the usual amount of insulin during the physical activity, the blood sugar will lower because muscles also transform the blood sugar into the energy needed in performing the physical activity. One of the reasons the respondents are being physically active is to be able to reduce the amount of insulin they need. They therefore experience the physical activity, as a waste of time leaving them with a feeling of defeat as the purpose of the activity was to avoid having to inject insulin. The respondents experience feelings like, sadness, frustration, lack of motivation, self-blame, and shame, when experiencing not being able to maintain a stable blood sugar during physical activity. According to Banduras' (1994) theory of self-efficacy the experience of these feelings over time will have a decreasing effect on a persons' self-efficacy such affecting their motivational process as they develop a perception of themselves, as not having the competence to succeed with the activity and thereby, loose the feeling of autonomy (Deci and Ryan, 1985). This was pointed out in the survey where respondents explained how obstacles and failures led to a sense of powerlessness resulting in a reduced commitment to the recommendation about physical activity, such affecting their cognitive process, which again have a significant meaning during a meeting with a professional. If the experience of not being able to stabilize one's blood sugar manifests in the individual, a risk of the individual deselecting the activity that is causing the unstable blood sugar is becoming real.

Of qualitative statements, we find that some people with diabetes fear the encounter with the healthcare system, as they experience being reduced from a whole person to simply reviewed figures and medical values. Consequently, they fear being scolded in the meeting with the professional, and such in advance may be affected of the anticipation of a negative outcome of the consultation, which may affect the establishment of the experience of engagement, such reducing the possibility of establishing the foundation for collaboration.

The respondents report feelings like proudness, happiness, joyfulness and having the time of their life, when being physical active, these feelings may increase a persons perceived self-efficacy such, providing the person with the feeling of competence, relatedness, and autonomy and thereby, foster intrinsic motivation. These feelings will affect the people's four psychological processes Bandura (1994) mentions as being affected of a perceived self-efficacy.

## DISCUSSION

The results indicate that attempts of establishing a collaborative relationship between the person with

diabetes and endocrinologist are often unsuccessful. As people with diabetes encounter many disciplines in a short time during a consultation at the EOC, considerations about the structure for a consultation at the EOC arises. The many encounters can create the feeling of insecurity, thus, forming a cognitive barrier for readiness in receiving and acting upon new information (Miller and Rollnick, 2013). For the person with diabetes, attending a consultation at the EOC they, first meet an endocrinologist who within a few minutes must adjust their medication, guide them in their own illness and at the same time document data about the interview and medical condition in the patient file. This leaves the endocrinologist with little excess for the motivational conversation (Miller and Rollnick, 2013). Thus, the women in the observations do not encounter a curious and appreciative approach to their person from the endocrinologist, which gives rise to a lack of experience of engagement. This leads to them being passive; not caring for their disease, such the endocrinologists likewise do not experience engagement during the encounters. As a result, the dialog become based on instructions about medicine and recommendations, instead of a curious approach based on their vulnerability dealing with their wishes, and goals for behaviour and lifestyle. This may lead to the women feeling degraded as individuals experiencing not being taking into advice about their own lifestyle, such effecting their motivational level and self-efficacy, due to an extrinsically created type of motivation formulated by a professional.

Contrary in observation number three the person with diabetes meets only one professional and has 40 minutes for consultation. He therefore only needs to relate to one human being and experience better time and less disturbance, as no new people appear during the consultation. The dialog is also based on the man's vulnerability, which is why there is talk of what he finds relevant and seeks advice for. He experiences recognition of his person as well as, co-determination for self-regulation. This can be assumed to strengthen his motivation and thus his self-efficacy. As he himself controls' which subjects, he wants to discuss, we assume that he experiences an intrinsic motivation in seeking guidance and such further knowledge about how he can adapt his behaviour. As the nurse manage to explain the functioning of his pump and how it affects his well-being she provides him with knowledge about how to handle his situation, which according to Bhaloo, Criscuolo-Higgins and Juma (2018) may motivate him to set a goal for himself which he can work at achieving. Thus, we argue for the necessity of establishing the feeling of commitment, cf. the theory of motivational interview, as the premise for emancipated patients can be argued to be based on whether a foundation for collaboration between patient and professional is successful.

Schwartz, Marling, and Bunesco (2018) have shown that people with digital products such as insulin pumps and blood sugar monitors lack knowledge and competence to act upon the information they receive from the digital products. As seen in observation three, the person with diabetes is missing the link between the lowering of his blood sugar level and the functioning of his pumps' default settings, causing him to fail with his self-regulation. Such the digital products are good in providing the people with diabetes better regulation, but the emancipation of the individual regarding health literacy can be questioned as they might become too dependable of the digital devices. Such the functioning of these digital devices may have a significant influence on people with diabetes' perceived self-efficacy and therefore also their motivation. It is such essential to develop methods for these people on how to remember to pre-adjust their digital devices and thereby foster the experience of success instead of failure.

According to Bandura (1994) the experience of failing will lead to a reduction in the level of a person's perceived self-efficacy such affecting e.g., their motivational processes which may lead to a person losing the desire and motivation within an activity and therefor deselect it. In this case, the negative experiences the people with diabetes report may influence their motivation and desire in performing physical activity due to a lowering blood sugar, which they know they should have been able to prevent. Contrary, the positive feelings the people with diabetes report to experience during their physical activity, according to Bandura (1994) may affect their cognitive processes leading them to achieve and improve higher goals for themselves e.g., improve their performance within the physical activity they are performing. Their motivational processes may be affected in the way the persons believe in their own capabilities such experiencing a strong motivation for the completion of a task or reaching a goal e.g., remember to measure blood sugar both before, during and after the physical activity. Their affective processes may be positive affected as the persons may experience to engage in life altering circumstances instead of trying to avoid them e.g., try to fulfil the self-regulation recommendations to its fullest. In addition, the selection processes may be affected in a matter of people experiencing a change for personal development e.g., becoming an expert on ones' own disease. Awareness on how these positive feelings is affecting the people with diabetes' self-efficacy is recommendable, hence these feelings can be utilised as a way for improving and-or maintaining the people with diabetes self-regulation. We suggest that educators and people within the healthcare system implement guiding methods and instruction leading the people with diabetes towards succeeding with their new lifestyle. If the professionals succeed with providing successful experiences early in the educational process, this may

be a self-reinforcing factor which can serve as a mean to strengthen the people with diabetes self-efficacy and with it, their level of health literacy.

The question is though, what are influential on these individuals' self-efficacy and level of motivation. One may argue that there is a connection between self-efficacy and sense of motivation, but does this connection also apply to Bhaloo, Criscuolo-Higgins and Juma' (2018) findings about gender specific motivational factors? Of the observed phenomenon it appears as the endocrinologist try to communicate the necessity of blood sugar measurements to both women but fail in the attempt to motivate them to do the measurements. The question arises about the endocrinologist' awareness of how he preferably should meet these women to motivate them. According to Deci et al., (1994) three factors affect the internalization process: 1) providing a meaningful rationale, 2) acknowledging the behavior's feelings and 3) conveying choice. Based on the observation and data from the motivational questions in our study there seem to be a difference between men and woman and the importance of these factors. In the scenario with the married couple the endocrinologist succeeds in motivating the husband but not the woman. It was enough for the husband to understand that it was important to adhere with the recommendations to regulate the disease, which correspond to the factor of providing a meaningful rationale. The woman however, left without understanding the importance of doing the blood sugar measurements due to the endocrinologist failing to acknowledge her feelings. Thus, the woman in our observation most likely only achieved introjection 'taking in a value or regulatory process but not accepting it as one's own' (Deci, et al., 1994: 119). We thereby find consensus with Bhaloo, Criscuolo-Higgins and Juma' (2018) conclusions on what motivates men and women. Taking into mind Banduras' (1994) four physiological processes, which will be affected by perceived self-efficacy, we such consider if a motivational strategy should be adapted according to gender specific motivational factors according to Bhaloo, Criscuolo-Higgins and Juma' (2018) findings and the level of perceived self-efficacy. Based on the data in this study, it appears as the people with diabetes who possess a high level of perceived self-efficacy are also adhering within the recommendations. These people may have another need for guidance than those who possess a low degree of perceived self-efficacy, who presumably need thorough guidance. We suggest that a set of guiding methods be developed according to gender and level of perceived self-efficacy. Such guidelines should provide the professionals with methods allowing them to succeed with their motivational purpose within treatment planning. The starting point for the guiding methods should be lifestyle goals of people with diabetes.

By including lifestyle goals of people with diabetes, it may be possible to increase motivation in several ways. First, they will feel relatedness as the focal point of the conversation will be their needs. Second, the probability of them understanding the instructions will increase as it begins with their current situation thus, they will be more competent. Finally, they will be empowered to feel autonomy, as they understand the link between their challenges and the treatment and thereby see how they themselves can change their situation.

## CONCLUSION

In our study, we found that while technical solutions such as an insulin pump can support people and make their everyday easier people often lack knowledge and competence to act on information, they get from the technical solutions. Thereby they, in specific situations, experience issues that lowers their self-efficacy and their motivation for adhering with recommendations for self-regulation. Instead, focus should be on the conversations with the endocrinologist as he/she plays a significant role in supporting people in adhering with recommendations and their internalization process. These conversations need to build on an experience of mutual trust and respect between the person with diabetes and the endocrinologist, which can be enabled through experiences of engagement. This is something the professional needs to be aware of, as the feeling need to manifest in the person with diabetes, such leading them to be vulnerable. The establishing of such trust demands time and tranquillity, if these are not met, people with diabetes will most likely experience an environment in which they feel reduced from being a whole person to being seen as a medical condition. Thus, they will experience having difficulties trusting the professional, which decreases the success of establishing a collaborative foundation. There do, however, seem to be differences in how information about diabetes should be disseminated by the endocrinologist based on people's gender and level of self-efficacy. We suggest that a strategy should be adapted according to gender specific motivational factors where the individuals need for guidance is taken into consideration and the information is provided based on how it best supports the individual's internalization process and the individuals' level of self-efficacy. This way the motivational interview becomes a tool that catalyst their empowerment to communicate and realise their lifestyle needs.

## COMPETING INTERESTS

The authors have no competing interests to declare.

## AUTHOR AFFILIATIONS

Marie Lyngbye

Aalborg University, DK

Anders K. Møller  [orcid.org/0000-0003-4581-4094](https://orcid.org/0000-0003-4581-4094)

Aalborg University, DK

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