

The Importance of Psychosocial Aspects in the Formation of New Healthy Lifestyle Habits in Adult Women: A Qualitative Study

Gabrielė Palevičiūtė, Sandrija Čapkauskienė, Brigita Miežienė
Lithuanian Sports University, Kaunas, Lithuania

ABSTRACT

Background. Healthy lifestyle is one of the main health determinants. Chronic diseases can be prevented by adopting health-related behavior and developing it into habits. Scientific literature suggests that psychosocial factors are part of people's lives as they also affect health and health behaviors and it is important to understand them.

Methods. Primary data collection method was face-to-face interview based on previous research. The main data was collected with self-reported diaries. Qualitative content analysis was used to analyze the data. Data was gathered on psychosocial factors and habits of adult women. There were eight participants in the study.

Results. The following psychosocial aspects related to health behaviors were encoded in the results: self-efficacy, intrinsic motivation, social support, distress and extrinsic motivation. The following emotions were encoded: joy, surprise, sadness, anger and fear. Women had similar psychosocial aspects and emotions towards new physical activity and nutritional habits.

Conclusions. The findings indicated that self-efficacy was a dominant psychosocial aspect in the formation of physical activity habits. Together with intrinsic motivation, which manifested mostly after performing their chosen physical activity behavior, self-efficacy was restored in cases that women felt down about themselves. Social support and extrinsic motivation also suggested positive effect on habit formation. Emotion of joy was observed both before and after physical activity. Sadness and anger appeared when a daily task was not accomplished. Fear was not a widespread emotion among women who developed physical activity habits. Self-efficacy and intrinsic motivation were not important in nutritional habits formation. Social support was as important as extrinsic motivation for women to pursue their chosen habits. Joy was the dominant emotion for women with nutritional habits. One example of surprise was given. Sadness occurred because of unaccomplished tasks. Anger led to not performing nutritional habits.

Keywords: psychosocial aspects, emotions, habits formation, adult women.

INTRODUCTION

Healthy lifestyle is a way to prolong life, to avoid serious diseases and enjoy life to the fullest. Mortality rates from cardiovascular diseases, cancer and all-cause mortality are at a high level although they all can be prevented by adopting healthy lifestyle behaviors. Body of research shows that individuals who adopt nonsmoking, being physically active, eating healthily and consuming low amounts of alcohol tend to live longer (Ekkekakis & Brand, 2019). World Health Organization (2002) precisely stated

that physical inactivity, smoking and bad diet were increasing dramatically and led to diabetes, obesity and cardiovascular diseases. At least three combined low risk factors can decrease mortality rates by 60% (Veronese, Manson, Willett, Fontana, & Hu, 2016). Given the need to lower mortality and enhance health it is important to form good habits (McCloskey & Johnson, 2019).

Just as it is important to focus on promoting healthier lifestyle, it is also important to understand psychosocial aspects, for instance, motivation,

and emotions and how they relate to health behavior (Ekkekakis & Brand, 2019; Ekkekakis & Zenko, 2016). Thus, the research on the impact of psychological aspects on medical conditions is growing widely (Martino, Langher, Cazzato, & Vicario, 2019). There is still a lack of information on how psychosocial aspects express in the formation of habits. Healthy habits can be preventive for all medical conditions and diseases and that is why it is so important to establish what psychological factors can develop in women life and how they are connected with life behaviors in general (Martino et al., 2019).

Prevention of healthy lifestyle and its factors appears to be associated with lower risks and longer life without chronic diseases (Chomistek et al., 2015; Nyberg et al., 2020). Even if people start to adopt health behaviors later in life, for example at age of 50, they could still prolong their life to about 12 to 14 years, both women and men (Li et al., 2018). A recent study by Li and colleagues (2020) showed that for women at the age of 50 who adopt at least 3 healthy lifestyle factors, free of cancer and cardiovascular diseases, life expectancy increases by 34.4 years.

There are many psychological and psychosocial factors that are important for, but the most mentioned in the literature are self-efficacy, social support, stress and motivation. One of the main and core aspects is self-efficacy is a belief of successfully attaining desired goals and behaviors (Sacomori, 2014). Low level of self-efficacy is often connected to low level of physical activity (Daniali, Darani, Eslami, & Mazaheri, 2017). The higher level is the efficacy, the greater probability to adopt new habits and achieve set goals. People are more likely to regulate the effort they put in and they feel more confident challenging complicated tasks (Hankonen, Absetz, Ghisletta, Renner, & Uutela, 2010).

Besides self-efficacy, which is an internal factor, social support is an external but no less important feature in women's life. Informational, emotional and logistical support from family, friends, instructors or coaches (also known as support sources) are very important and play a big part in achieving goals. Social support satisfies basic psychological needs and helps to manage healthy lifestyle (Edwards & Sackett, 2016; Moreno-Murcia, Belando, Huéscar, & Torres, 2017).

Another psychosocial aspect, important for maintaining healthy lifestyle is distress.

Psychological distress just like social support is an external aspect. Although it is more common between women than men because of occupational work and household tasks (Malinauskiene, R. Malinauskas, & M. Malinauskas, 2019). Marsh, Chan, and MacBeth's (2018) meta-analysis showed that self-compassion had a relationship with psychological distress. People with higher levels of self-compassion showed association with lower levels of distress. Self-compassion is a very important factor for mental health and quality of life. A person who has more self-compassion has a greater level of resilience being in distress. It is connected to being open to social support and being able to cope by using intrapersonal and interpersonal strategies (Dupasquier, Kelly, Waring, & Moscovitch, 2020).

There are two types of motivation: intrinsic motivation and extrinsic motivation. Intrinsic motivation is characterized as the behavior that is performed for intrinsic fulfillments rather than for some distinct result. When a person is intrinsically motivated, he/she acts on a behavior because of pleasure and not because of outside pressures or prizes. Extrinsic motivation is what relates to at whatever point an action is done to achieve some divisible result. Extrinsic motivation accordingly appears differently in relation to intrinsic motivation, which alludes to doing an action just for the happiness regarding the action itself, as opposed to its instrumental worth (Ryan & Deci, 2000).

Emotions also affect personal behavior. Emotions influence our behaviors psychologically. Rhodes and Kates (2015) findings show significant relationship between positive emotions and continuity in healthy behavior, in this case physical activity and healthy diet. There is bigger relationship between emotions during exercise and continuity of behavior than with emotions post-workout and continuity. Post-workout emotions increase self-efficacy, but it has no significant result with continuing behavior (physical activity, healthy diet) (Rhodes and Kates, 2015). It is basic human understanding that emotions influence behaviors. Emotions that gave individual pleasure also drive individual to repeat the activity and emotions that are unpleasant usually keep people away from activities that arouse negative feelings. Although, there is little research about the relationship between direct emotional influences and chosen behaviors (Jekauc & Brand, 2017).

Habit according to Rubin (2015) is an action that is repetitive, usually develops without much realization or intention, and is obtained by repeating it over and over again. Habit (automatic responses to specific cues) and its formation depend on behaviors. Habit formation depends on every person individually (Lally & Gardner, 2013). But studies have also shown that approximately 66 days is the time in which it is possible to form a habit (Lally, Van Jaarsveld, Potts & Wardle, 2010). Wood and Neal (2007) suggested that to acquire any kind of exercising habit is much harder than to acquire nutritional habit because to exercise you need to think more: when, how and where.

Research by McCloskey and Johnson (2019) states that habit development depends on three individually working elements – behavioral frequency, contextual stability, and rewards which first were mentioned in Wood and Neal (2016). Every element can work individually as mentioned earlier, but if all three elements are included in a habit formation process, most likely the habit will be developed. Their article shows that there is significant data that rewards influence habit formation (Wood & Neal, 2016).

Habit formation is just as important for healthy lifestyle as self-efficacy, social support, distress, intrinsic and extrinsic motivation and emotions. As Antiniene and Lekaviciene (2019) maintain, all these factors are connected, they exist together, however there are many separate studies which

analyzed each of these factors in habit formation but there is a lack of deeper understanding how these factors coexist in qualitative analyzes.

The problem question of the research is: how psychosocial aspects are expressed with the formation of new healthy lifestyle habits in adult women? The aim of the research was to establish expression of psychosocial aspects in the formation of new healthy lifestyle habits in adult women. Research objectives were as follows:

1. Establish psychosocial aspects important for the new physical activity habit formation in adult women.
2. Establish psychosocial aspects important for the new nutritional habit formation in adult women.

METHODS

Research participants. Research participants were selected using convenience sampling strategy. Four criteria were used to select participants: women, aged 20–45 years, in need to adopt new habits, volunteers to participate in the study.

Eight participants were invited to the study, seven of them completed the study and one left in the middle of the study. All women were from the cities with the number of people exceeding 100000. The age range was from 20 to 45 years. Characteristics of participants are presented in Table 1.

Table 1. Characteristics of participants

Participant	Age (years)	Height (cm)	Weight (kg)	Education	Occupation	Relationship status	Chosen habit
P1	23	173	69	Master's degree	Advisor at the ministry of finance	In a relationship	Physical activity (jogging)
P2	21	162	52	High school diploma	Student, informal children teacher	In a relationship	Nutrition (drinking water)
P3	22	172	80	High school diploma	Student, McDonalds employee	Single	Physical activity (walking)
P4	24	180	82	Bachelor's degree	Student, team assistant	In a relationship	Physical activity (jogging)
P5	23	172	63	Bachelor's degree	Accountant	In a relationship	Nutrition (eating breakfast)
P6	45	173	84	Bachelor's degree	Vegetarian shop owner, part-time gym coach	Divorced	Physical activity (going to the gym)
P7	24	165	80	High school diploma	Student, part-time accountant	Single	Physical activity (jogging)
P8	26	176	81	Bachelor's degree	Student, part-time customer service manager	Single	Nutrition (eating more fruits)

Research methods. In this research, semi-structured face-to-face interview was used to collect primary data (Lavrakas, 2008). The main data was collected through self-reported diaries (Zimmerman & Wieder, 1977). Qualitative content analysis was used as data analysis method (Bengtsson, 2016). SMART model was used to formulate habit goal effectively (Les MacLeod EdD, 2012). The ideas for the questions were taken from Sharman, Jose, Venn, Banks, Ayton and Cleland (2019) research and modified to this study topic. Interview questions were adapted based on interview course. All interviews were audio recorded and purposively transcribed for qualitative content analysis. Interview questions were prepared attentively to obtain the necessary information; they were distributed to smaller units: demographic data – age, race, city, country, education, marital status, height and weight; social data – hobbies, social environment; feelings – mood impact on chosen behaviors; habits and experience- new habit, old habits (Table 2). This

data was accumulated to comprehend what kinds of members were participating in the research. Information from interviews was also used to conduct participants' characteristics (Lavrakas, 2008). Participants were asked to write a diary about their days in chronological order about two weeks twice a month. We asked to write about most memorable feelings and events that happened. We provided basic questions When, Who, Where, What, and How. "When?" involved time of the day. "Who?" we asked to name a person by not identifying the name but calling them friend, boyfriend, girlfriend or any other individual. "Where?" a place. "What?" meant to describe an activity. And "How?" involved feelings about the specific event or action (Zimmerman & Wieder, 1977). The participants provided reliable answers as "I am familiar with them from before, we have trusting relationships". One participant's interview and diaries were in English, seven participants' interviews and diaries were translated from Lithuanian to the English language.

Table 2. Interview questions (Modified by Sharman & colleagues, 2019)

No.	Part	Questions
1.	Demographic	How old are you? Where are you from? What is your ethnicity? Where do you live (city, country)? What is your education? What is your marital status? What is your height? What is your weight? What is your occupation?
2.	Social	Tell me something about yourself (work, free time, family, friends, hobbies) Tell me more about your work, its environment and how you feel there. What do you do during your free time? How do you feel in your social environment? Is social support important for you and your life style improvements? How do you imagine social support? Are you happy with your social support environment? If no, how do you think it can be improved? Does your family/friends/boyfriend/girlfriend support you?
3.	Feelings	Tell me about a time when your mood had an impact on your own chosen behavior (this could be positive or negative). How did you deal with it? Even if you failed to complete your action because of your mood, would you try to do it again?
4.	Habits and experiences	What kind of new behavior would you like to adopt? Have you ever tried to adopt this habit or is it new? How do you think this habit will be beneficial for you? Tell me about your habits (connected to the new one). Have you ever tried to develop a habit? (How did it go?) When did you do it? For what reasons did you want to develop a new habit? What influenced its formation?
5.	Topic based discussion:	Goal/habit based on SMART. Do you have any questions?

Research organization. The first step in research organization was to select and contact the participants. The participants were chosen based on gender, age and being in need of new habits. Invitation letters to participate in the study were sent by an e-mail. Participants were asked to choose a behavior which they wanted to develop into a habit. The participants who agreed to participate were asked to sign an informed consent form (Annex). Women were informed that all presented data, interviews and diaries would remain anonymous. They were also introduced with research topic and the plan. Face-to-face interviews were taken during first research week. Time and location were chosen and agreed by both sides. Primary interviews took approximately 20 to 30 minutes. One and a half month, every day when they were engaged into the behavior, they presented pictures, illustrating the engagement to researchers. It was a motivational measure to track the progress. After one and a half month motivational measure tracking stopped. During the research term, participants self-reported their experiences and feelings in diaries which they sent to the researchers twice a month. Diaries represented emotions and thoughts that women had during the week, the reasons why they engaged into the behavior or why they did not. After the research was done all data were analyzed and discussed. The time period of this research was three months, from 2020 July until 2020 October.

Data analysis. Both interview and diary answers were analyzed using a qualitative content analysis method (Bengtsson, 2016). Interview materials were used as primary data and characteristics of the participants were excluded. Diaries were the main source of information. All transcribed texts were carefully read and then meaningful units were singled out. Meaningful units were selected according to the aim. Open coding was used to label each identified meaningful unit (Berg, Lune & Lune, 2004). Codes were chosen inductively during the analysis process. Then categories and sub-categories were generated. All coded information was presented in tables containing categories, sub-categories and illustrative examples.

Research ethics. The participants who agreed to participate were asked to sign an informed consent form (Annex). Women were informed that all presented data, interviews and diaries were anonymous.

RESULTS

Analyzing the diaries of the participants who choose to adapt new physical activity habits, internal and external aspects were observed (Table 3). Self-efficacy as an internal psychosocial aspect was seen in all participants' answers. It led women towards their goal: "<...> I believe that next week will be better and I will run even more". However, there were a few answers that were negative in terms of self-efficacy. It had a temporary effect on women's psychological state, but after experiencing intrinsic motivation they were back to achieving their goal. Participants felt intrinsically motivated mostly after they performed their chosen physical activities: jogging, going for a walk or going to the gym. Although there were different incentives that motivated them, women got the same results, they continued with their goals. They mentioned satisfaction, running that became easier, photos of how they looked and the feeling after workout. The most common emotion was joy among the women with physical activity habits. Participants wrote either about being satisfied, feeling good, happy or surprised. Emotion of joy positively pushed women to develop their desired physical activity habit – "I was so happy today and the running was much easier". Performing their goal of the day which was connected with their new physical activity habit, they also became joyful – "Satisfaction comes after gym". Joy had an adverse effect on women's life. Participants felt sad mostly because they did not get to do physical activity. However, one woman in the beginning of the research tried to push herself to go for a walk and she felt bad about it. Most women had a negative response of anger on their chosen behavior. Although one participant went for a run after she got angry, just to calm herself down. Fear was the least felt emotion connected to physical activity habits. Going out and getting sick were the features that triggered fear of being physically active.

External psychological aspects were social support, distress and extrinsic motivation. The answers showed that having social support had positive outcomes. But one participant also wrote that when her friend could not go running with her, it did not help: "My friend <...> made long hours at work <...> didn't help as well." All women who wrote about distress in their diaries had the same outcomes. They did not want to go running or walking. One of them went to the gym just because

Table 3. Psychological aspects related to the development of physical activity habits

Category	Subcategory	Example
Internal	Self-efficacy	<p>“<...> I was in the flow of being active <...>”</p> <p>“<...> I believe that next week will be better and I will run even more.”</p> <p>“<...> I do not need a challenge written somewhere to do what makes my day <...> no quarantine will stop me from going out <...>.”</p> <p>“Today I ran 12 km. <...> proud for having done what I told myself to do.”</p> <p>“I got sick <...> and I don't think tomorrow I can go jogging.”</p> <p>“<...> and I told myself “I am sure I can run 4 km”, and I did!”</p> <p>“With every new day I had more self-confidence going out.”</p> <p>“I know how I looked before; I know I can look the same.”</p> <p>“<...> failed on my commitment<...> makes me feel worse.”</p>
	Intrinsic motivation	<p>“I felt satisfied after <...> physical activity, which motivated me the next time.”</p> <p>“Seeing how every day running became easier it made me run more.”</p> <p>“I saw my photos before quarantine, and I want to look the same again.”</p> <p>“The feeling after I achieve my goals is amazing<...> and that is what I repeat to myself for motivation.”</p>
	Joy	<p>“<...> I felt the satisfaction after running.”</p> <p>“Accomplishing the runs <...>. It makes me feel good.”</p> <p>“I felt satisfied after every physical activity, which motivated me the next time”</p> <p>“Today I ran 12 km. I feel good <...>.”</p> <p>“Satisfaction comes after gym.”</p> <p>“<...> I love the feeling after the gym, I feel so good.”</p> <p>“I was so happy today and the running was much easier.”</p> <p>“<...> I was actively walking outdoors and going to the gym, I didn't think it would be so interesting to me.”</p> <p>“<...> I was surprised she invited me so I went for a run.”</p>
	Sadness	<p>“<...> have to self-isolate myself<...> I'm not very happy <...> I didn't get to run outside.”</p> <p>“I pushed myself, but did not feel good.”</p> <p>“<...> I feel sad that this challenge comes to an end.”</p> <p>“<...> it was such a bad week <...> so many misfortunes got to me, I did not even do sports <...>”</p> <p>“<...>I was sad because I spend most of the time inside because of working and studying from home.”</p>
	Anger	<p>“<...> I'm already sick of being inside all the time and I don't want to do anything at all right now.”</p> <p>“<...> I felt bad about myself that I don't want to go out.”</p> <p>“I am so lazy and I do everything just because I have to, I feel angry with myself.”</p> <p>“I had an argument with my employer and needed to let some steam down, so I went for a run.”</p>
	Fear	<p>“Although, still I feel awkward going out to the park”</p> <p>“I am afraid of going for a run because I don't want to get sick again, <...>.”</p>
External	Social support	<p>“I feel happy for having a good friend around again <...> fun to run together.”</p> <p>“<...> friend who I usually run with now days, I feel like the running became part of our weekly schedule.”</p> <p>“My friend <...> made long hours at work <...> didn't help as well.”</p> <p>“It really helps to have a running buddy.”</p> <p>“Helps me <...> I go with my daughter or some client.”</p> <p>“My best friend said that she is very proud that I started to do sports.”</p> <p>“<...> because of my boyfriend, <...>, he invited me to join.”</p>
	Distress	<p>“The last few months I feel like I am in a rush to do all the things that I have in mind, even running.”</p> <p><...> involved work in the evening and stress. I'm not very happy <...> it put me down.”</p> <p>“I had a very bad week <...> gone to the gym just because I had to work.”</p> <p>“Bachelor thesis <...> I feel like everything is falling apart and I don't want to do anything at all. I am stressed about my thesis but then I am also stressed that I don't do anything.”</p> <p>“I had a really long and stressful week and didn't want to do anything.”</p>
	Extrinsic motivation	<p>“<...> treated ourselves with a delicious smoothie after the run <...> we said we would do if we ran 10km.”</p> <p>“<...> but while in quarantine I tried new aerobic exercises at home.”</p> <p>“<...> quarantine the first part of the week <...> I got to go outside on the weekend <...> made most of it!” “Today I ran 12 km.”</p> <p>“<...> knowing that I would have to write down what I achieved that week, I wanted to do it.”</p> <p>“Accomplishing the runs make me feel like whatever else happens that day, at least I've done that.”</p> <p>“I look up to the sky and the nature I have in my surroundings. I feel the next week will be good”</p> <p>“It is a very good thing to make promise, then even if I am lazy or there are other plans, I cannot let them down.”</p> <p>“<...> smart watch helps a lot, tracking my progress motivates me.”</p>

she had a commitment to work. Extrinsic motivation manifested because of different features. Between the selected examples such as treated herself with a smoothie after workout, being motivated by the nice weather and nature around her, going outside after quarantine, making promise to someone and having smart watch tracking the progress – extrinsic motivation was observed.

After the psychological aspects among adult women with nutritional habits formation were analyzed (Table 4), observations showed only a few examples of self-efficacy. Women wrote about being proud, doing well for their body and believing in themselves. Intrinsic motivation was mentioned only once where the participant stated that she was competing with herself by increasing

Table 4. Psychological aspects related to the development of nutritional habits

Psychological aspects	Subcategory	Example
Internal	Self-efficacy	<p>“<...> I felt like I was doing well for my body <...>.”</p> <p>“After this week I feel very proud of myself <...>.”</p> <p>“<...> and now I feel that I can do anything, today I woke up and made healthy balanced breakfast.”</p> <p>“I told myself that I can for sure eat the necessary amount of fruits.”</p>
	Intrinsic motivation	<p>“<...> tried to drink more water everyday <...> I competed with myself.”</p>
	Joy	<p>“<...> I felt kind of good that I drink water, I even like it.”</p> <p>“I feel joyful that finally I don't forget to take my bottle with me.”</p> <p>“I got very good news <...> I squeezed orange juice for breakfast.”</p> <p>“<...> and I think that fruits give me more energy and I feel happier <...>.”</p> <p>“He proposed to me and I wanted to do something nice for him, <...>. breakfast was amazing! The whole day I was like on my wings.”</p> <p>“I feel great about myself and my achievement in this habit.”</p>
	Surprise	<p>“<...> and before I tried drinking water regularly I did not belief that I would feel less sleepy.”</p> <p>“I was surprised that I don't feel so down anymore <...>.”</p> <p>“It is so cool that now I think about my new habit only when I have to write my diary.”</p>
	Sadness	<p>“I forgot to bring my water bottle <...> I felt guilty.”</p> <p>“<...> first week, but yet I feel sad that I remembered to take banana with me only once.”</p> <p>“<...> I felt sad that I did not have breakfast and skipped one day.”</p>
	Anger	<p>“<...> I felt angry on myself that I did not complete today's task.”</p> <p>“<...> and we argued so I just left home earlier and did not eat.”</p> <p>“I had such a bad day <...> forgot my wallet, got angry and did not buy fruits for the next day.”</p>
	Fear	<p>“I had a competition today and I was afraid how it will go, I forgot not only my bottle but helmet too.”</p> <p>“<...> mangos, I was afraid I will hate it.”</p>
External	Social support	<p>“<...> my boyfriend reminded me to take water bottle every day during the first week.”</p> <p>“<...> I have no support, and he said that I will be too lazy to wake up earlier.”</p> <p>“<...> she said it was great habit and decided to join me and eat more fruits with me.”</p> <p>“My boyfriend is happy that I make breakfast now, he encouraged me.”</p>
	Distress	<p>“I was so stressed in the morning because of an appointment at work today and making breakfast helped me to take my mind from it.”</p> <p>“<...> and now I feel that when I am stressed I eat the banana <...> instead of some chocolate.”</p> <p>“Work had me stressed all week, but I already take my water automatically with me, it kind of helps me to calm down.”</p> <p>“I am too stressed to try to achieve my goal; I have too much going on and I can't continue with my habit formation.”</p> <p>“I had a competition today and I was afraid how it will go, I forgot not only my bottle but helmet too.”</p> <p>“I was stressed <...> and I ran through the doors and forgot to take an apple.”</p>
	Extrinsic motivation	<p>“<...> it was very hard to remember that I have to fill my water bottle <...> but when I remember that I have to send a picture I come back and fill it.”</p> <p>“<...> tried to use “water app” <...> I felt most motivated <...>.”</p> <p>“Food apps motivate me to try new recipes for breakfast.”</p> <p>“He proposed to me and I wanted to do something nice for him, <...> breakfast was amazing!”</p>

water intake every day. Participants felt joy after achieving their nutritional habit and because of other factors such as engagement or good news, but in both cases joy led them towards the automatic response of their nutritional habits. In participants who chose nutritional habit formation, surprise emotion was observed. Surprise was linked with outcomes of the chosen habit: “<...> and before I tried drinking water regularly I did not believe that I would feel less sleepy”. All women felt sad since they did not complete their daily nutritional tasks. Angry emotion was observed because of different features, one that participant forgot to take her water and others because of external features: “<...> and we argued so I just left home earlier and did not eat”. Fear had indirect and direct effect on nutritional habits formation. “I had a competition today and I was afraid how it will go, I forgot not only my bottle but helmet too” – the competition provoked fear and the outcome was that she forgot her water bottle. “<...> mangos, I was afraid I will hate it” – direct effect to habit, she had never tried mangos, bought them but was afraid to eat it.

External aspects were mentioned more often than internal. In the beginning of this research one of the participants wrote that she had no social support from her boyfriend “<...> I have no support, and he said that I will be too lazy to wake up earlier.”, but later during the study – social support appeared “My boyfriend is happy that I make breakfast now, he encouraged me”. Some of the participants forgot their forming habit because of distress. Others managed their distress by performing the nutritional habit. One woman reported that she was much stressed and cannot continue with the research. Extrinsic motivation came from pictures that participants had to send during the first month and a half. Apps on the phones helped participants with their nutritional habit formation. One woman got engaged and it was good motivation for her to wake up and make breakfast for herself and her fiancée.

DISCUSSION

The main aim of this study was to establish psychosocial aspects with the formation of new healthy habits in adult women. Psychosocial aspects are related to habit formation (Antiniene & Lekaviciene, 2019). By analyzing our participants' diaries, examples showed that psychosocial aspects had connections. For instance, being satisfied is also being joyful, which leads to wishing to repeat the action which can be understood as intrinsic

motivation. This statement is in line with Deci & Ryan's (2002) overview about Self-Determination Theory that positive emotions have ties to some forms of intrinsic motivation. In general, it is clear that psychosocial factors and emotions are connected with behaviors and habits. Because of that it can be presumed that healthy behaviors are better achieved while in a good mood and being mentally healthy. It is a belief that if people are happy after or during their chosen behavior, they will most likely repeat it (Jekauc & Brand, 2017). The same authors stated that there is little research in how emotional states interfere with physical activity. In our study, after analyzing expression of emotions with formation of new physical activity and nutritional habits, answers showed that women who were joyful and happy wanted to repeat and continue their chosen habits.

The analysis of diaries revealed that self-efficacy was more important in the first month of habit formation. So, it can be assumed that like Shieh, Weaver, Hanna, Newsome and Mogos (2015) stated, when a person is in maintenance phase or habit has become a daily life behavior, self-efficacy is not so important anymore. Self-efficacy after exercise is significant with affective states, which means that both of them are dependent on each other. This investigation likewise shows that the impact of emotional factors on actual work is autonomous of self-efficacy, though the two of them are interrelated. This study also shows that the effect of affective variables on physical activity does not depend on self-efficacy, but they both work simultaneously (Matsuo, Matsubara, Shiga, & Yamanaka, 2015).

Social support was often mentioned in the diaries of our study participants. Women wrote how good they felt when they had support either from a friend, family members or significant others. It was an important aspect to have social support so that habit formation would be better and easier for them. It is mandatory for women to know how important companionship and encouragement is. Having social support is one of the most important psychosocial aspects that guide women towards satisfied and happy lives (Moreno-Murcia et al., 2017).

The results on motivation in our study agree with Linnenbrink-Garcia, Patall and Pekrun (2016) statement about how motivation gives us information on one's ability, want and view towards the goal. However, emotions are usually a lot more intense and they are tied to behavioral outcomes or on-going performances (Pekrun, Frenzel, Goetz

& Perry, 2007). Results from our research shows exactly what a big effect emotions have on habits that women have chosen to develop. Either it was anger, sadness, joy, surprise or fear; all emotions affected their choice to perform or not to perform chosen habit. For example, enjoyment is a positive, emotion and has ties to intrinsic forms of motivation (Deci & Ryan., 2002; Linnenbrink-Garcia et al., 2016). People who undergo extrinsic motivation usually are less active and are more likely to not finish what they started (Standage, Duda, & Ntoumanis, 2003; Yli-Piipari, Watt, Jaakkola, Liukkonen, & Nurmi, 2009). Although even in our research there were more examples of extrinsic motivation rather than of intrinsic motivation, our findings are a little contradictory to Standage, Duda, and Ntoumanis' (2003) and Yli-Piipari, Watt, Jaakkola, Liukkonen and Nurmi's (2009) declaration because all except for one of our participants finished their habit formation process.

Our participants utilized the expression "stress" to portray their interior sensations of distress and ascribed this pressure to a scope of elements or outer stressors that were for the most part outside their ability to control. They likewise portrayed outer elements that straightforwardly affected their habit formation. These finding of ours are in line with McKenzie and Harris (2013) results in patients that want to be healthier but distress makes it difficult. Our findings show that being in a good mood and positive psychological state participants acted on their physical activity habits as well as on nutritional habits. Even though we did not analyze resilience in psychology, we still could agree that participants who felt good were more active and ate healthily. Bielskytė (2009) researched students, namely how their psychology affected physical activity and nutritional habits. The findings showed that psychological resilience was positive towards frequent exercise: walking, jogging or any kind of physical activity. Self-esteem in Bielskytė's study (2009) had the same results on healthy lifestyle behaviors.

Humans are able of self-surprise and studies show that it is the main internal thing that drives person's creativity and outcomes (Grace & Maher, 2015). Our results agree with Grace and Maher findings, our participants mostly felt surprised by their own actions. In our study anger had a negative expression towards our participants' chosen goals. When they felt angry they tended not to act on the chosen habits. Although there is evidence that anger is not always a negative emotion and it can also lead

towards good outcomes. Anger is not always bad, it just depends on how people use it (Haidt, 2003).

The results of the study showed that even though psychological aspects and emotions were expressed in negative and positive ways towards habit formation, almost all participants had smoothly achieved their goals. They all acted on their tasks according to the feelings and emotions they had at that particular moment. McKenzie and Harris (2013) in their study had the same results. Keeping healthy lifestyle is complex and complicated. People have to moderate their strategies, beliefs and should have social support. Having challenges under every different circumstances people feel distress. It usually comes from external factors that influence behaviors, but learning how to moderate all of them could turn into healthy and happy life.

After analyzing our participants' diaries, we observed that psychological aspects affected the formation of the habit. Women described their feeling towards events that happened and actions that they took.

The limitation of the study was the lack of participants. Further studies should focus on emotional effects in habit formation, namely how and why they make people act in a way they do. Also, how emotions could be managed in order to make it easier to achieve desired goals. Specifically, sadness and anger which appear to be the main emotions that prevent people from achieving habit goals. As social support is important for health behaviors, it should be studied deeper in qualitative studies on habit formation.

CONCLUSIONS

Self-efficacy was a dominant psychological aspect in the formation of physical activity habits together with intrinsic motivation. Emotion of joy was expressed as feeling happy, satisfied, good or surprised among participants developing a new physical activity habit. Joy was observed both before and after physical activities. Participants felt sad mostly if they did not develop their chosen habits. Negative response of anger was observed when women did not perform a behavior, but in one particular case a participant went for a run because she wanted to calm herself down. Fear was mentioned very little and it occurred only because of getting ill. Social support and extrinsic motivation also showed positive effects on habit formation. All women had the same outcomes while feeling distress – they did not perform any physical activities.

Self-efficacy in women that chose nutritional habits was established only in a few examples. Intrinsic motivation as well as self-efficacy was not popular psychological aspects in the formation of nutritional habits. Joy was the dominant emotion for women developing nutritional habits. In nutritional habit formation, surprise emotion was encoded. In nutritional habit formation, sadness occurred because of unaccomplished tasks. The emotions of

anger led to not performing chosen behaviors. Fear had indirect and direct effect on habit formation. Having social support encouraged participants to continue with formation of the nutritional habit. Distress was observed when participants forgot to act on their chosen nutrition behavior. Extrinsic motivation was obtained from features like pictures that had to be sent during the study, apps that helped to track progress and life events which made them pursue their goals because of good mood.

REFERENCES

- Antiniene, D., & Lekaviciene, R. (2019). Some psychological factors that affect emotional intelligence of Lithuanian high school students. *Social Welfare: Interdisciplinary Approach*, 1(9), 8–23. <http://dx.doi.org/10.21277/sw.v1i9.378>
- Bengtsson, M. (2016). How to plan and perform a qualitative study using content analysis. *Nursing Plus Open*, 2, 8–14. <https://doi.org/10.1016/j.npls.2016.01.001>
- Berg, B. L., Lune, H., & Lune, H. (2004). *Qualitative research methods for the social sciences* (Vol. 5). Boston, MA: Pearson.
- Bielskytė, J. (2009). *Studentų sveikos gyvensenos ir subjektyvaus savo sveikatos vertinimo ryšys su psichologiniu atsparumu bei savigarba* (Magistro baigiamasis darbas). Kaunas: Vytauto Didžiojo universitetas.
- Chomistek, A. K., Chiuev, S. E., Eliassen, A. H., Mukamal, K. J., Willett, W. C., & Rimm, E. B. (2015). Healthy lifestyle in the primordial prevention of cardiovascular disease among young women. *Journal of the American College of Cardiology*, 65(1), 43–51.
- Daniali, S. S., Darani, F. M., Eslami, A. A., & Mazaheri, M. (2017). Relationship between self-efficacy and physical activity, medication adherence in chronic disease patients. *Advanced Biomedical Research*, 6, 63. <https://dx.doi.org/10.4103%2F2277-9175.190997>
- Deci, E. L., & Ryan, R. M. (2002). Overview of self-determination theory: An organismic dialectical perspective. *Handbook of Self-Determination Research*, 2, 3–33.
- Dupasquier, J. R., Kelly, A. C., Waring, S. V., & Moscovitch, D. A. (2020). Self-compassionate college women report receiving more social support in the face of distress: Evidence from a daily diary study. *Personality and Individual Differences*, 154, 109680. <https://doi.org/10.1016/j.paid.2019.109680>
- Edwards, E. S., & Sackett, S. C. (2016). Psychosocial variables related to why women are less active than men and related health implications: supplementary issue: Health disparities in women. *Clinical Medicine Insights: Women's Health*, 9, CMWH-S34668. <https://doi.org/10.4137%2F2FCMWH.S34668>
- Ekkekakis, P., & Brand, R. (2019). Affective responses to and automatic affective valuations of physical activity: Fifty years of progress on the seminal question in exercise psychology. *Psychology of Sport and Exercise*, 42, 130–137. <https://doi.org/10.1016/j.psychsport.2018.12.018>
- Ekkekakis, P., & Zenko, Z. (2016). Measurement of affective responses to exercise: From “affectless arousal” to “the most well-characterized” relationship between the body and affect. In *Emotion measurement* (pp. 299–321). Woodhead Publishing.
- Grace, K., & Maher, M. L. (2015, June). Specific curiosity as a cause and consequence of transformational creativity. In *ICCC* (pp. 260–267).
- Haidt, J. (2003). The moral emotions. *Handbook of Affective Sciences*, 11(2003), 852–870.
- Hankonen, N., Absetz, P., Ghisletta, P., Renner, B., & Uutela, A. (2010). Gender differences in social cognitive determinants of exercise adoption. *Psychology and Health*, 25(1), 55–69. <https://doi.org/10.1080/08870440902736972>
- Jekauc, D., & Brand, R. (2017). How do emotions and feelings regulate physical activity? *Frontiers in Psychology*, 8, 1145. <https://doi.org/10.3389/fpsyg.2017.01145>
- Lally, P., & Gardner, B. (2013). Promoting habit formation. *Health Psychology Review*, 7(Suppl. 1), S137–S158. <https://doi.org/10.1080/17437199.2011.603640>
- Lally, P., Van Jaarsveld, C. H., Potts, H. W., & Wardle, J. (2010). How are habits formed: Modelling habit formation in the real world. *European Journal of Social Psychology*, 40(6), 998–1009. <https://doi.org/10.1002/ejsp.674>
- Lavrakas, P. J. (2008). *Encyclopedia of survey research methods* (Vols. 1–0). Thousand Oaks, CA: Sage Publications, Inc. doi: 10.4135/9781412963947.
- Les MacLeod EdD, M. P. H. (2012). Making SMART goals smarter. *Physician Executive*, 38(2), 68.
- Li, Y., Pan, A., Wang, D. D., Liu, X., Dhana, K., Franco, O. H., ... & Hu, F. B. (2018). Impact of healthy lifestyle factors on life expectancies in the US population. *Circulation*, 138(4), 345–355. <https://doi.org/10.1161/CIRCULATIONAHA.117.032047>
- Li, Y., Schoufour, J., Wang, D. D., Dhana, K., Pan, A., Liu, X., Song, M., Liu, G., Shin, H. J., Sun, Q., Al-Shaar, L., Wang, M., Rimm, E. B., Hertzmark, E., Stampfer, M. J., Willett, W. C., Franco, O. H., & Hu, F. B. (2020). Healthy lifestyle and life expectancy free of

- cancer, cardiovascular disease, and type 2 diabetes: Prospective cohort study. *BMJ (Clinical Research Ed.)*, 368, l6669. <https://doi.org/10.1136/bmj.l6669>
- Linnenbrink-Garcia, L., Patall, E. A., & Pekrun, R. (2016). Adaptive motivation and emotion in education: Research and principles for instructional design. *Policy Insights from the Behavioral and Brain Sciences*, 3(2), 228–236.
- Malinauskienė, V., Malinauskas, R., & Malinauskas, M. (2019). Leisure-time physical inactivity and psychological distress in female-dominated occupations in Lithuania. *Women & Health*, 59(1), 28–40. <https://doi.org/10.1080/03630242.2017.1421288>
- Marsh, I. C., Chan, S. W., & MacBeth, A. (2018). Self-compassion and psychological distress in adolescents – a meta-analysis. *Mindfulness*, 9(4), 1011–1027. <https://doi.org/10.1007/s12671-017-0850-7>
- Martino, G., Langher, V., Cazzato, V., & Vicario, C. M. (2019). Psychological factors as determinants of medical conditions. *Frontiers in Psychology*, 10, 2502. <https://doi.org/10.3389/fpsyg.2019.02502>
- Matsuo, E., Matsubara, S., Shiga, S., & Yamanaka, K. (2015). Relationships between psychophysiological responses to cycling exercise and post-exercise self-efficacy. *Frontiers in Psychology*, 6, 1775. <https://doi.org/10.3389/fpsyg.2015.01775>
- McCloskey, K., & Johnson, B. T. (2019). Habits, quick and easy: perceived complexity moderates the associations of contextual stability and rewards with behavioral automaticity. *Frontiers in Psychology*, 10, 1556. <https://doi.org/10.3389/fpsyg.2019.01556>
- McKenzie, S. H., & Harris, M. F. (2013). Understanding the relationship between stress, distress and healthy lifestyle behaviour: A qualitative study of patients and general practitioners. *BMC Family Practice*, 14(1), 1–8. <https://doi.org/10.1186/1471-2296-14-166>
- Moreno-Murcia, J. A., Belando, N., Huéscar, E., & Torres, M. D. (2017). Social support, physical exercise and life satisfaction in women. *Revista Latinoamericana de Psicología*, 49(3), 194–202. <https://doi.org/10.1016/j.rlp.2016.08.002>
- Nyberg, S. T., Singh-Manoux, A., Pentti, J., Madsen, I., Sabia, S., Alfredsson, L., Bjorner, J. B., Borritz, M., Burr, H., Goldberg, M., Heikkilä, K., Jokela, M., Knutsson, A., Lallukka, T., Lindbohm, J. V., Nielsen, M. L., Nordin, M., Oksanen, T., Pejtersen, J. H., Rahkonen, O., ... Kivimäki, M. (2020). Association of Healthy Lifestyle with Years Lived Without Major Chronic Diseases. *JAMA Internal Medicine*, 180(5), 760–768. doi:10.1001/jamainternmed.2020.0618
- Pekrun, R., Frenzel, A. C., Goetz, T., & Perry, R. P. (2007). The control-value theory of achievement emotions: An integrative approach to emotions in education. In *Emotion in education* (pp. 13–36). Academic Press.
- Rhodes, R. E., & Kates, A. (2015). Can the affective response to exercise predict future motives and physical activity behavior? A systematic review of published evidence. *Annals of Behavioral medicine*, 49(5), 715–731.
- Rubin, G. (2015). *Better than before: Mastering the habits of our everyday lives*. UK: Hachette.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68.
- Sacomori, C. (2014). *Fatores que influenciam a aderência aos exercícios do assoalho pélvico domiciliares em mulheres adultas com incontinência urinária*. Florianópolis, SC: Universidade do Estado de Santa Catarina.
- Sharman, M. J., Jose, K. A., Venn, A. J., Banks, S., Ayton, J., & Cleland, V. J. (2019). “I love having a healthy lifestyle” – a qualitative study investigating body mass index trajectories from childhood to mid-adulthood. *BMC Obesity*, 6(1), 16. <https://doi.org/10.1186/s40608-019-0239-3>
- Shieh, C., Weaver, M. T., Hanna, K. M., Newsome, K., & Mogos, M. (2015). Association of self-efficacy and self-regulation with nutrition and exercise behaviors in a community sample of adults. *Journal of Community Health Nursing*, 32(4), 199–211. <https://doi.org/10.1080/07370016.2015.1087262>
- Standage, M., Duda, J. L., & Ntoumanis, N. (2003). A model of contextual motivation in physical education: Using constructs from self-determination and achievement goal theories to predict physical activity intentions. *Journal of Educational Psychology*, 95(1), 97. <https://psycnet.apa.org/doi/10.1037/0022-0663.95.1.97>
- Veronese, N., Li, Y., Manson, J. E., Willett, W. C., Fontana, L., & Hu, F. B. (2016). Combined associations of body weight and lifestyle factors with all cause and cause specific mortality in men and women: prospective cohort study. *BMJ*, 355. <https://doi.org/10.1136/bmj.i5855>
- Wood, W., & Neal, D. T. (2007). A new look at habits and the habit-goal interface. *Psychological Review*, 114, 843–863. <https://psycnet.apa.org/doi/10.1037/0033-295X.114.4.843>
- Wood, W., & Neal, D. T. (2016). Healthy through habit: Interventions for initiating & maintaining health behavior change. *Behavioral Science & Policy*, 2(1), 71–83. <https://doi.org/10.1353/bsp.2016.0008>
- World Health Organization. (2002). Physical inactivity a leading cause of disease and disability, warns WHO. Accessed on 2020-12-04. <https://www.who.int/news/item/04-04-2002-physical-inactivity-a-leading-cause-of-disease-and-disability-warns-who>
- Yli-Piipari, S., Watt, A., Jaakkola, T., Liukkonen, J., & Nurmi, J. E. (2009). Relationships between physical education students’ motivational profiles, enjoyment, state anxiety, and self-reported physical activity. *Journal of Sports Science & Medicine*, 8(3), 327.
- Zimmerman, D. H., & Wieder, D. L. (1977). The diary: Diary-interview method. *Urban Life*, 5(4), 479–498. <https://doi.org/10.1177%2F089124167700500406>