Conceptualisation of Mental Health from Lay Students Across Europe

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July 25, 2021

Abstract

Background: The definition of mental health is still on debate. There are many differences in conceptualisations of mental health between countries and lay student perspectives are often overlooked. This study investigated the conceptualisation of mental health among university students in Europe and cultural similarities and differences between conceptualisations across seven European countries.

Method: Data gathered through semi-structured interviews from 34 natural science and engineering students (mean age=22.79 years, SD=1.967, 64.7% men) from seven European countries; Austria, Czech Republic, Italy, the Netherlands, Serbia, Turkey, and the United Kingdom, were used in the analyses. There were five participants from every country, except for Czech Republic, where there were four participants.

Results: Inductive thematic analysis showed eleven aspects related to mental health; achievement and success, autonomy, balance, behaviour, coping and resilience, external conditions, feelings, harmony, mental illness, rationality and social functioning. Having close relationships with friends and family was valued the most across countries. Among collectivistic countries, autonomy was mentioned relatively less in comparison with social functioning.

Conclusions: The eleven aspects related to mental health help to shape a broader understanding of the lay students conceptualisation of mental health to ultimately improve mental health research and mental health care. However, extensive research is needed to discover if the similarities and differences between the conceptualisations of mental health stay the same when using a bigger sample.

Table of contents

Introduction

Historically, the concept mental health was already defined by many people in ancient Greece medicine. Pindar, a Greek poet, defined health as 'harmonious functioning of organs' and was the first to empathize health as a feeling of comfort and absence of pain (Svalastog et al., 2017). Plato pointed out in his 'Dialogues' that a healthy mind in a healthy body could be established with internal harmony and harmony with the physical and social environment. Aristotle said that social relationships are necessary to achieve harmonious functioning in the society and health of its members. Furthermore, Hippocrates explained health in connection with environmental factors and lifestyle. He created the concept 'positive health' which consisted of genetics, diet and exercise. Thus, the concept of mental health already has a long history, is not static and can change through time.

Furthermore, mental health has been conceptualised by many researchers through different models and theories. According to the medical model of mental health, mental health has been primarily defined in terms of mental illness or the absence of mental illness (Maddux, 2002). Over the past decades, research has shown that there is also a positive side to mental health and that mental health is not only about mental illness. For example, the two continua model shows that positive mental health and mental illness are related, but form two different dimensions of mental health (Westerhof, & Keyes, 2010). Positive mental health consists of three dimensions of well-being; emotional well-being, psychological well-being and social well-being (Westerhof, & Keyes, 2010). Emotional well-being is used to describe the subjective experience of one's well-being and includes experiencing positive or negative emotions and life satisfaction (Keyes, 2007). Psychological well-being refers to individual fulfilment and living a meaningful life. Ryff (1989) developed the six-factor model of psychological well-being which describes six factors that contribute to one's psychological well-being. The six factors are self-acceptance, environmental mastery, positive relationships, personal growth, purpose in life and autonomy. Moreover, Ryan and Deci (2000) also focussed on individual fulfilment in their self-determination theory where well-being is enhanced when the three basic psychological needs for autonomy, competence and relatedness are fulfilled. Next, Keyes (1998) argued that social well-being is about how to function optimally in society and consists of five dimensions; social coherence, social acceptance, social actualization, social contribution and social integration. So, mental health is not only about mental illness but also about positive mental health which consists of emotional well-being, psychological well-being and social well-being.

Consistent with these scientific developments in the approach to defining mental

health, The World Health Organisation (2020) defines mental health as "a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community." This definition conceptualises mental health not only as a state of absence of mental illness, but also as a positive state where individuals can thrive and flourish (Wren-Lewis, & Alexandrova, 2021). However, Wren-Lewis and Alexandrova (2021) stated that this definition provides a high standard for people to meet, and is therefore not realistic. Moreover, this definition is conceptualised by experts and is theory driven. Little attention has been given to the lay perspectives and these are often overlooked (Huppert et al., 2009). Therefore, it is important to consider lay perspectives in conceptualising mental health.

Why lay perspectives?

Lay perspectives can improve the quality of research. The term 'lay' in this context refers to people who did not study and practice something health related. The key to understand mental health needs of laypeople is their conceptualisation (Armstrong et al., 2000). Unfortunately, there is a lack of mental health data from laypeople, which is critical in providing mental health care (Erskine et al., 2017). Involving lay perspectives in generating knowledge may improve the relevance and acceptance of findings (Entwistle et al., 1998), and can be used to evaluate health care programmes (Calnan, 1992). Concluding, laypeople contribute to research with legitimate views and important insights regarding mental health, that ultimately can be used to improve mental health research and mental health care.

Not only do lay perspectives have an influence on mental health research, but also on the experience and behaviour of laypeople. Heintzelman et al. (2020) found that lay views on meaning of life have an influence on the experience and behaviour relating to meaning of life. To specify, lay knowledge on mental health may influence behaviour, such as food choices, amount of exercise or seeing a doctor (Calnan, 1992). Moreover, McMahan and Estes (2011) showed that the association people had with well-being were related to their experience of well-being. Thus, if lay beliefs about mental health can shape mental health experiences, it is important to understand how people conceptualise mental health.

Conceptualisations of mental health

The current study investigated the conceptualisation of mental health among university students across seven European countries. Unfortunately, there are only a few studies on how laypeople conceptualise mental health. Adolescents, young adults and students investigated in the following studies are considered as laypeople. Willenberg et al. (2020) investigated in Indonesia how adolescents, aged 16 to 18 years, conceptualised mental health. The

adolescents conceptualised good mental health as emotional well-being and happiness, one's ability to cope with problems and stress, good relationships with friends and family, spirituality and religion. Bad mental health was conceptualised as mental illness manifesting in behavioural and physical problems. Having a low self-esteem, bad family relationships, experiencing school pressure, adverse exposures on social media and bullying were also used to describe bad mental health. Moreover, Armstrong et al. (2000) asked high school students in Scotland how they conceptualise mental health. Positive mental health was associated with a healthy diet and exercise, feeling happy, a good support system, positive self-esteem and personal achievements. Bad mental health was associated with mental illness and negative feelings. Armstrong et al. (2000) also found that external conditions have an influence on the mental health of high school students in Scotland. Pets and presents contributed to good mental health and problems within the family, bereavement and bullying contributed to bad mental health. In addition, Hall et al. (2016) asked youth from Australia, ranging from 16 to 20 years old, to describe their perspective on positive mental health. Developing one's identity, being able to cope, being resilient, leisure, good daily functioning, having goals, having positive relationships with family members, having a role model and having a physical place to escape to when feeling stress were mentioned as components of positive mental health. So, a wide range of aspects related to mental health have been mentioned and can be compared with the conceptualisations of mental health in this study.

Cultural similarities and differences

The second aim of this study is to investigate the cultural trends in conceptualisations of mental health between seven European countries; Austria, Czech Republic, Italy, the Netherlands, Serbia, Turkey, and the United Kingdom. These countries were selected based on their diverse geographical locations and cultures within Europe since there is limited research on mental health conceptualizations taking European cultures as its focus (Uskul, & Mesquita, 2014). Much of the research on cultural diversity comes from North American and Asian contexts (Gobel, et al., 2018). However, European cultures are distinguished from other cultures in the world. European cultures value commitment to others and egalitarianism rather than individualism-collectivism (Gobel et al., 2018). So, it is important to look at Europe as a continent because there might be differences in conceptualisations of mental health between Europe and other continents.

However, it also important to investigate the conceptualisation of mental health across countries within the European continent to see if there are differences between these conceptualisations. Because, European cultures differ in terms of political preferences and

socioeconomic factors. Most Western European countries promote emancipative values such as freedom of choice and gender equality. Political instability and restricting emancipative values negatively effects people's emotional well-being (Ngamaba, 2016), which is more common in Eastern European countries than in Western European countries. Moreover, Böhnke (2005) found that people who have trust in their political system and citizens, have higher levels of life satisfaction. To specify, D'Agostino et al. (2019) found that young adults living in Italy and other Mediterranean countries in Europe have lower levels of institutional trust, which has significant impact on one's levels of life satisfaction. Since life satisfaction is a part of emotional well-being and emotional well-being a component of positive mental health, these studies suggest that there may be cultural differences between European countries when it comes to mental health. Accordingly, the current study's secondary aim was to explore similarities and differences between countries within Europe with regards to how mental health is conceptualised.

Present study

The aim of this study was to investigate the conceptualization of mental health in Europe among natural science and engineering students. The reason for investigating natural science and engineering students is for their lack of psychological background. The first aim of this was to better understand student lay perspectives of mental health and to what extent these conceptualisations are in line with existing theoretical models of mental health. Moreover, students are particularly at risk of mental health problems. Exploring students' conceptualisation of mental health could facilitate the adaption of mental health care programmes to their needs. This study will use an existing data set that was collected by the 2013-2014 cohort of the Junior Researcher Programme, supported by the European Federation of Psychology Students Associations (Lamers et al., 2014). Data were collected across seven European countries; Austria, Czech Republic, Italy, the Netherlands, Serbia, Turkey, and the United Kingdom. As a secondary aim, the components that participants consider central to mental health will be compared across these European countries to examine whether there are trends in the conceptualisations.

Method

Participants

The 2013-2014 cohort of the Junior Researcher Programme collected data across seven European countries; Austria, Czech Republic, Italy, the Netherlands, Serbia, Turkey, and the United Kingdom. The ethics were granted for the data collection by the ethical committee of the psychology departments in each country from the universities of the original authors (see Lammers et al., 2014).

Data were collected from 35 psychology students and 34 natural science or engineering students. For this study, only the data collected from the natural science or engineering students are analysed, given that students from these majors are a better representation of lay perspectives. Inclusion criteria was that the participants had to be between the ages 18-30 and followed a bachelor or master major in natural science or engineering. PhD students were excluded. Only participants that were born and raised in the mentioned European countries and did not live abroad for more than one year, were included to ensure that participants have not been significantly exposed to different cultural values. Persons directly known by the interviewers were excluded from the study to avoid interviewer biases. The sample of 34 participants, consisted of 64.7 percent men and 35.3 percent woman. The mean age of the participants (n=34) was 22.79 years (SD=1.967). This sample consisted of five participants per country, with exception of Czech Republic, where there were four participants.

Procedure and materials

Participants were recruited through different social media platforms, using the snowballing method. The interviews were conducted face-to-face and started with a general introduction where the purpose of the interview was briefly explained. The interviewer did not mention the fact that this interview was conducted in different countries since that could have influenced the participant's answers. Participants were instructed to associate freely and told that there are no right or wrong answers. After written consent was taken from the participants, the interviews were audio-recorded. The data were collected by conducting semi-structured interviews in the participants' native language. The interview scheme consisted of eleven main questions where the participants were asked about one's associations with mental health. Examples of questions were: "What comes to your mind when you think of mental health?" and "Do you know anyone who is mentally healthy and what makes you think that?" The interviewer also asked the participants demographic questions, such as age, current year of study, study major, country of birth and amount of time the participant lived abroad. The

interview questions can be found in the Appendix. After the interview, the participants were thanked and given a small treat.

Data analysis

Braun and Clarke (2006) described a thematic approach that was used for analysing the interviews. They developed a 15-point checklist for good qualitative analysis that was followed to ensure the quality of the process. The analysis was carried out in an inductive manner. The researcher (the author of this thesis) did the data analyses based on the substantive coding theory (Holton, 2007). The first step in this process is for the researcher to become familiarized with the data including transcribing the semi-structured interviews, and translating the interviews to English (done previously by the authors of Lamers et al., 2014).

Next, the researcher started coding the data in Atlas.ti, where open codes to seven interviews, one randomly selected from every country, were given. Some units of analysis consisted of words, other units of analysis consisted of a sentence. This was determined by the number of different concepts a participant mentioned in a sentence. After the open coding, the researcher searched for similarities within the units of analysis and created codes where the units of analysis could fit. The names of the codes were chosen by using the words of the participants. The coding continued until a coding scheme was created based on the seven interviews, where the codes were mutually exclusive and exhaustive. Thereafter, the researcher coded four more randomly selected interviews and adjusted the coding scheme, which revealed in the last coding scheme. With the last coding scheme, the researcher continued coding until saturation was reached. The saturation was reached after coding three more randomly interviews based on the last coding scheme, because no new information came up and all units of analysis were assigned to codes.

Next, the last coding scheme was shared with a second assessor. The second assessor and the researcher (i.e., the coders) coded independently the same five new randomly assigned interviews based on the last coding scheme to determine the interrater reliability. The inter-rater reliability was computed using Krippendorff's Cu-Alpha (Cuα). The Krippendorff's Cu-Alpha indicates the extent to which coders agree on the presence or absence of codes (Krippendorff et al., 2016). The coding scheme is sufficient when the inter-rater agreement is substantial (Cuα ≥ .667) or high (Cuα ≥ .80) (Krippendorff, 2004). If the inter-rater agreement were low (Cuα < .667), disagreements between the coders had to be discussed until consensus was reached. The Krippendorff's Cu-Alpha that was calculated based on the first five interviews came out on Cuα .58, which indicated a low inter-rater

reliability. Accordingly, the coders discussed disagreements and improved the coding scheme, which revealed the final coding scheme. Next, the coders adjusted their first five interviews and coded an additional five new randomly selected interviews based on the final coding scheme independently and the interrater reliability was computed again based on ten interviews. Now, the Krippendorff's Cu-Alpha came out on Cuα 0.70, which revealed a sufficient inter-rater reliability. Lastly, all interviews were coded with this final coding scheme.

Results

To see how natural science and engineering students (n=34) conceptualise mental health, semi-structured interviews were conducted in seven European countries. Based on these semi-structured interviews, a coding scheme was created where eleven codes were mentioned to describe mental health. The final coding scheme is presented in Table 1, which shows the number of participants that mentioned a code. In Table 2, the units of analysis are visualised by county along with the (total) percentages of the codes. The codes are alphabetically ordered in the tables and discussed in text from the most mentioned code to the least mentioned code. Quotations in text from the participants were used to illustrate the meaning of the code. Quotations were selected based on comprehensiveness and if the quotations were clearly related to the code.

Table 1

Number of participants per code by country

Codes	AUT	CZ	ITA	NL	S	T	UK	Total
Achievement & Success	4	2	2	4	3	4	2	21
Autonomy	5	3	4	4	3	3	3	25
Balance	3	2	1	4	3	2	4	19
Behaviour	4	4	4	3	3	3	4	25
Coping & Resilience	5	2	3	4	3	5	4	26
External Conditions	3	4	5	4	3	5	4	28
Feelings	5	3	3	5	2	4	3	25
Harmony	4	2	5	5	2	3	4	25
Mental Illness	5	2	4	5	3	4	5	28
Rationality	4	0	5	5	4	4	4	28
Social Functioning	5	4	5	4	4	4	4	30

Table 2

Units of analysis by country

Codes	AUT	CZ	ITA	NL	S	T	UK	Total
Achievement & Success	24	7	9	26	4	17	6	93
%	8.99	5.47	6.38	7.39	4.30	10.30	4.38	7.25
Autonomy	20	11	17	37	3	7	7	102
%	7.49	8.59	12.06	10.51	3.23	4.24	5.11	7.95
Balance	13	4	3	41	8	8	11	88
%	4.87	3.13	2.13	11.65	8.60	4.85	8.03	6.86
Behaviour	10	12	8	24	13	9	9	85
%	3.75	9.38	5.67	6.82	13.98	5.45	6.57	6.63
Coping & Resilience	29	11	4	24	9	8	18	103
%	10.86	8.59	2.84	6.82	9.68	4.85	13.14	8.03
External Conditions	16	13	22	19	6	31	13	120
%	5.99	10.16	15.60	5.40	6.45	18.79	9.49	9.35
Feelings	39	19	11	47	6	14	12	148
%	14.61	14.84	7.80	13.35	6.45	8.48	8.76	11.54
Harmony	25	12	14	20	3	10	14	98
%	9.36	9.38	9.93	5.68	3.23	6.06	10.22	7.64
Mental Illness	24	6	22	29	6	12	18	117
%	8.99	4.69	15.60	8.24	6.45	7.27	13.14	9.12
Rationality	20	0	9	39	15	24	17	124
%	7.49	0	6.38	11.08	16.13	14.55	12.41	9.66
Social Functioning	47	33	22	46	20	25	12	205
%	17.60	25.78	15.60	13.07	21.51	15.15	8.76	15.98
Total	267	155	141	352	93	165	137	1283

Social Functioning

The first code, Social Functioning, is the most mentioned code. The code Social Functioning covers all traits, qualities, and behaviours that lead to building and maintaining interactions and relationships with others. This code is specifically about the quality or the value of one's social relationships, and the things one does to bring a positive impact on one's social relationships and interactions. Likewise, traits, qualities, and behaviours that lead to negative social interactions or relationships are also included here. Moreover, this code describes the presence of a well-working social network and social inclusion of a person. It includes all forms of an individual’s relationship resources, such as romantic relationships,

friendships, and family relationships. This code has a wide variance since it covers all traits, qualities and behaviours that leads to having a positive or negative relationship with others. Mentally healthy people were described as considerate of others, available to others, helpful, giving advice, open, having healthy relationships with others, being included, being able to make friends, having a good interaction with others, having a romantic relationship, easy going and having a good relationship with one's family. For example, a participant from Austria (AUT4) mentioned the importance of friends and family: *"For me, family and friends have a very high priority.''*

However, not only were the mentally healthy people described with regards to social contacts, also mentally unhealthy people were mentioned. Mentally unhealthy people were described as causing stress with others, breaking ties with friends, showing isolating behaviour, harming or hurting others, not treating others nicely, having many conflicts with others, derogating others, having a lack of social support, arguing a lot, and being selfish. A participant from the Netherlands (NL1) described someone as mentally unhealthy because: *"She does not have many social contacts.''* In addition, a participant from the United Kingdom (UK2) said that a negative interaction reflects bad mental health: *"... it also reflects in the way that they interact with other people, it tends to be quite mean.''*

Most of the participants from every country mentioned this code as a component of mental health. In total, this code was mentioned by 30 participants. 205 units of analysis were assigned to this code, which is 15.98 percent of all codes. This code was mostly mentioned by participants living in Czech Republic and Serbia and least mentioned in the United Kingdom and the Netherlands.

Feelings

Next, the code Feelings covers expressions which are focused on the valence (positive, negative or neutral) of moods, emotions, feelings and sentiments as having an impact on one's mental health. Importance of emotions, consistency and stability of emotions, emotional awareness, emotional release as well as an ability to control emotions is covered in this code. Additionally, satisfaction of life is included in this code. This means being satisfied with life, but also with oneself. This code has a wide variance since it covers all emotions and feelings, it's importance, stability and satisfaction of life. Feelings that described a mentally healthy person were: a good mood, enjoying life, happiness, optimism, no drastic mood changes, fulfilment, gratitude, appreciation, cheerfulness, comfort, secure, support, thankful, satisfied and content. A participant from Austria (AUT9) described life satisfaction as a component of good mental health: *"I think it's an overall satisfaction, so that you're happy or satisfied.''* In

addition, a participant from the United Kingdom (UK2) mentioned positive emotions as an indicator of good mental health: *"Feeling kind of grateful and thankful and appreciative. I think appreciation is a big part of being mentally healthy…''* On the other hand, feelings of a dark mood, afraid of failing, afraid of heights, fast and heavy mood swings, being too moody, mood changes, being easily upset, unable to regulate emotions, feeling bad, not feeling at ease, uncomfortable and unhappy were mentioned to describe mentally unhealthy people. A participant from the Netherlands (NL2) mentioned stability as a component of mental health: *"Because of her instable mood I would call her mentally unhealthy.''*

A total of 25 participants found feelings to be an indicator of good or bad mental health. 148 units of analysis were assigned to this code, which is 11.54 percent of all codes. This code was mostly mentioned by participants from Czech Republic, Austria, and the Netherlands and least mentioned in Serbia and Italy.

Rationality

Following, the code Rationality is used as an umbrella term in order to summarize forms of rational thinking, such as rational decision-making and logical/analytical problem-solving. Additionally, more character-related aspects like making realistic plans, expectations and goal-setting, as well as pragmatism and being down-to-earth were included. Furthermore, this code covers healthy/unhealthy thought patterns and its consistency and coherence. It also covers expressions focused on the valence or direction (positive, negative or neutral) of thoughts. This code has a wide variance since it covers all thought patterns and forms of rational thinking and decision making. Someone was described as mentally healthy when one's capable of rational reasoning, rational decision making, able to follow one's thoughts, optimistic, logical thinking, intelligent and pragmatic. One participant from the Netherlands (NL5) described a mentally healthy person as rational: *"…who knows where to fit in his thoughts, that that person is able to fit their thoughts into a logic frame so that you can rationalize certain things for yourself.''* Moreover, a participant from Austria (AUT5) mentioned thought patterns and logical problem solving are components of mental health: *"… that you don't always slip into negative thoughts. That you at least try to logically analyse problems that you have and not only see everything totally negative.''* A mentally unhealthy person is described as someone who cannot follow their own thoughts, overthinks, has unrealistic goals and is pessimistic. A participant from the United Kingdom (UK8) describes a mentally unhealthy person as: *"Not being able to think clearly is an important one. Because you're not thinking about things in a clear and logical way anymore.''*

This code was mentioned by 28 participants. 124 units of analysis were assigned to this code, which is 9.66 percent of all codes. This code was mostly mentioned by participants living in Serbia and Turkey, and least mentioned in Czech Republic, Italy and Austria.

External Conditions

Thereafter, the code External Conditions describes the environment of a person and its importance for mental health. It includes characteristics of education, physical environment, society, as well as all the life experiences one faced. Genetical and biological factors, finances and money, education level, natural disasters, wars, bad neighbourhood, authoritarian government, temperature and terrorism are included in this code. Moreover, childhood experiences and upbringing, family history like losing parents, having parents separate and similar events are also covered in this code. This code has a wide variance since it covers all conditions which are about one's environment. A participant from Turkey (T5) mentioned many external conditions that have an influence on one's mental health: *"... father being in prison, being molested as a child, father may have attacked the mother, violence from the parents, real strict views about homosexuality, and learning that your father is gay for example.''* Another participant from Italy (ITA9) mentioned that genetics and biological factors to be central to mental health: *"I think that some genetic and biological predispositions play a great role.''* Moreover, a participant from Turkey (T8) mentioned that one's financial situation is important for good mental health: *"First financial matters; financial matters are very important, because if you haven't grown up in an economically sufficient place, and if you haven't had the opportunities that a certain socio-economical background could provide, these can be the reasons for an unhealthy mental state.''*

This code was mentioned by 28 participants. There were 120 units of analysis assigned to this code, which is 9.35 percent of all codes. This code was mostly mentioned by participants living in Turkey and Italy and least mentioned in the Netherlands and Austria.

Mental Illness

Then, the code Mental Illness describes statements regarding mental illnesses and related aspects such as anxiety, depression, personality disorders, addiction, developmental disorders, neuropsychological problems, inappropriate/dysfunctional behavior connected to those problems and distress provoked by these problems. Furthermore, this category contains use of clinical terms and reference to diagnoses, hospitalization and various forms of treatment regarding mental illness. Also, the absence of mental illness is covered in this code. This code has a small variance since it only covers concepts related to mental illness. Mental illnesses such as depression, dementia, hyperactive disorder, bipolar, addictions, obsessions,

delusions, substance use, schizophrenia, borderline, anxiety, neurological disorders, developmental disorders, personality disorders and hypochondria were mentioned by the participants as an indicator of bad mental health. A participant from the United Kingdom (UK7) associated mental health with mental illnesses: *"I associate it with common illnesses, like, probably depression, schizophrenia, stuff like that."* In addition, medication, hospitalization, going to psychiatrists, isolation cells and suicidality were also terms that came up by the participants. For example, a participant from the Netherlands (NL1) associated mental health with mental illnesses and related concepts: *"Psychological illness… I think of bad disorders like schizophrenia, borderline. Forced hospitalization, medication, psychologists, psychiatrists… I think of isolation cells."* In contrast, the absence of mental illness was indicated as good mental health. A participant from Austria (AUT5) defined mental health as: *"Simply not suffering from mental problems or illnesses."*

This code was mentioned by 28 participants. 117 units of analysis were mentioned in this code, which is 9.12 percent of all codes. This code was mostly mentioned by participants living in Italy and the United Kingdom, and least mentioned in Czech Republic and Serbia.

Coping & Resilience

Furthermore, the code Coping & Resilience includes themes which focus on someone's coping process, coping mechanisms or coping ability, coping with, fighting with or dealing with life events or with difficulties, coping with stress, resilience and an ability to overcome problems, solving problems and conflicts, recovering and improving, adapting to new behaviours/situations, adapting to changes in one's life and an ability to change. Being resistant, tolerant to life's difficulties, being flexible so that one can adapt in the face of hardships or when negative events are experienced, and having power and strength to cope with things are all themes included in this code. This code has a small variance since it only covers units of analysis that are about coping and resilience. Mentally healthy people were described as being able to handle stress, able to deal with all what life brings, do not have many problems, flexible and able to let go sometimes. A participant from Austria (AUT7) mentioned coping as an indicator of good mental health: *"A person who is mentally healthy has the possibility to deal with things."* Furthermore, a participant from the Netherlands (NL3) mentioned resilience as an indicator of good mental health: *"… has issues but has the resilience to smoothen those issues."* On the other hand, a participant from Czech Republic (CZ3) described a mentally unhealthy person: *"And then there are people who are unable to manage things happening in their lives."*

26 participants mentioned this code and 103 units of analysis were assigned to this code, which is 8.03 percent of all codes. This code was mostly mentioned by participants living in the United Kingdom, Austria and Serbia, and least mentioned in Italy and Turkey.

Autonomy

Following, the code Autonomy refers to the degree people make decisions independent from others. Independence can be described as not being (emotionally) dependent on others and their judgments, having an internal locus of control. The capacity to reason independently with personal reflection. Acting according to your interest and values. This code also includes moral aspects. Moreover, it covers self-love, self-respect, self-acceptance, self-knowledge and self-esteem. This code also covers awareness of your thoughts, memories, feelings and environments. Furthermore, this code is about personal growth and progress. This code has a wide variance since it covers independence, concepts such as self-love and self-esteem, consciousness and personal growth. A participant from the United Kingdom (UK2) described someone as mentally healthy when someone has self-worth and self-love: *"So I think people that have high self-worth and self-love are the people that are most mentally healthy.''* Another participant, one from Austria (AUT1) described someone as mentally unhealthy when someone is emotionally dependent on others: *"I would say that he is emotionally very dependent, he aims very much to correspond to others their requests.''*

This code was mentioned by 25 participants. There were 102 units of analysis assigned to this code, which is 8.95 percent of all codes. This code was mostly mentioned by participants living in Italy, the Netherlands and Czech Republic, and least mentioned in Serbia, Turkey and the United Kingdom.

Harmony

Next, the code Harmony covers themes and statements that are about general balance, stability and harmony of things, being balanced, stable, harmonic, holistic, in tune with oneself or with the world, being at ease with oneself, being calm, peaceful, relaxed, having an inner sense of peace, an inner sense of strength or power. This code is about these higher order or abstract concepts. Moreover, believing in a higher power and religion were also covered in this code. This code has a small variance since it only covers abstract concepts. For example, a participant from Czech Republic (CZ3) mentioned harmony and calmness as an indicator of good mental health: *"Mental health… I imagine a picture of an ideal person being calm and in harmony.''* Moreover, a participant from the Netherlands (NL1) mentioned living at ease as a component of good mental health: *"The ease of living is what makes me*

consider him mentally healthy, so how easy it is to live for someone.'' On the other hand, participants described a bad mental health as having a broken mental health or having a broken mind. Not being stable was also mentioned as mentally unhealthy. For example, a participant from Turkey (T10) said that: *"People who don't have a stable psychology''* are mentally unhealthy. In addition, a participant from Austria (AUT1) described inner power reserves as a component of mental health*: "This person is not mentally healthy in terms of that these inner power reserves are used up more or less.''*

25 participants mentioned this code to describe mental health. There were 98 units of analysis assigned to this code, which is 7.64 percent of all codes. This code was mostly mentioned by participants living in the United Kingdom, Italy, Czech Republic and Austria, and least mentioned in Serbia.

Achievement & Success

Thereafter, the code Achievement and Success includes feelings of achievement, successfulness, and feelings of motivation to achieve something. Furthermore, having a drive, being action oriented and self-determination are included. The pursuit of one's goals, wisdom and knowledge are also covered in this code. Not only feelings, but also being successful and things one has achieved are covered in this code. Moreover, this code includes attitudes towards work and studies. These can be positive, negative and neutral attitudes. On the other hand, this category includes pressure to achieve and subsequent stress connected to achievement. Lack of motivation to achieve is also included in this category. This code has a wide variance since feelings of achievement, actual achievement, attitudes towards work and studies and pressure to achieve are covered in this code. A participant from Italy (ITA10) mentioned someone as mentally healthy because of his achievements: *"Since he has already achieved some work-related goals, he's a person with a good mental health.''* Another participant from the United Kingdom (UK2) described that experiencing pressure has a negative impact on one's mental health: *"A lot of my friends are doing their dissertations at the moment, and have a lot of pressure put on them. The pressures of tasks, are becoming kind of mentally pressing tasks, and this need to perform very well has a huge impact on mental health.''*

Achievement and Success was mentioned by 21 participants both in terms of being mentally healthy and mentally unhealthy. 93 units of analysis were covered in this code, which is 7.25 percent of all codes. Achievement and Success was mostly mentioned by participants living in Turkey, Austria, the Netherlands, and least mentioned in Serbia, the United Kingdom and Czech Republic.

Balance

Then, the code Balance describes the level of daily functioning of a person. It consists of all aspects that are part of everyday functioning such as taking care of hygiene, normal sleep patterns, healthy diet, regular exercising and good physical appearance. Moreover, it describes the ways in which people spend and organize their time: managing work-life balance, having hobbies, enjoying spare time and dedicating time to oneself. Experiencing a burn-out is also covered in this code. The amount of physical energy and vitality one has is covered by this code as well. This code has a moderate variance since it covers overall functioning, time-management and vitality. One participant from Serbia (S9) said that reading, practicing sport, studying, having hobbies and enjoying art were all components of mental health. A participant from the United Kingdom (UK8) said that having a routine is important: *"stick to their normal routines… I guess mentally healthy people have normal routines in terms of eating and sleeping as well.''* In contrast, a participant from the Netherlands (NL1) mentioned disruptions in balance to be a sign of bad mental health: *"… not being able to take good care of yourself, not eating well, being awake at night.''*

19 participants mentioned this code as a component of mental health. 88 units of analysis were covered in this code, which is 6.86 percent of all codes. This code was most frequently mentioned by participants living in the Netherlands, Serbia and the United Kingdom, and least mentioned in Italy and Czech Republic.

Behaviour

Lastly, the code Behaviour covers any positive or negative behaviour that is not specified in any social contacts. What someone is doing and what impact behaviour that has to one's life. This code includes stability and consistency in behaviour. This code has a small variance since it only covers behaviour not socially specified, stability and consistency of behaviour. Being mentally healthy was described as being able to do a lot, acting appropriate, acting normal, stable behaviour, consistent behaviour and socially accepted behaviour. A participant from Turkey (T8) described a mentally healthy person as: *"Someone who behaves properly.''* In addition, a participant from Serbia (S6) said: *"Consistency is very important. People should behave without any abrupt and inappropriate moments.''* Being mentally unhealthy was described as inappropriate behaviour, unable to do things, showing extreme behaviour, doing things different than others and actions that are out of place. A participant from Czech Republic (CZ9) described a mentally unhealthy person: *"… reacting inappropriately. Like you don't know what to expect from that person. He is very explosive and aggressive, not very stable.''*

This code was mentioned by 25 participants, and the majority of the participants from every country mentioned this code. In total, 85 units of analysis were assigned to this code, which is 6.63 percent of all codes. This code was mostly mentioned by participants living in Serbia and Czech Republic and least mentioned in Austria.

Cultural Outcomes

The participants living in Austria found good relationships with friends and family to be of great importance to mental health. Having positive or negative feelings were often used to describe one's mental health and one's ability to cope with difficulties and stress were used to conceptualise mental health in Austria. In Czech Republic, the participants also valued good relationships with friends and family the most and used positive or negative feelings to describe one's mental health. External conditions were mentioned to be central to one's mental health. The participants from Italy found external conditions to be the most central to one's mental health. They defined mental health in terms of mental illness and valued good relationships with friends and family. Having positive or negative feelings were central to the conceptualisation of mental health by the participants from the Netherlands. They also valued good relationships with friends and family and a good work-private life, where one functions well on a daily basis. In Serbia, the participants valued having good relationships with friends and family. They also found rational reasoning and decision making to be of great importance in describing one's mental health. In Serbia, behaviour was an indicator of one's mental health. The participants from Turkey found external conditions to be central of mental health. Having good relationships with friends and family were also of great importance and rational reasoning and decision making was used to describe one mental health. And lastly, in the United Kingdom mental illness was frequently used in the conceptualisation of mental health. One's ability to cope with difficulties and one's ability to reason rationally were of great importance to one's mental health.

A few cultural trends that emerged from the results were that having close relationships with friends and family was mentioned in the top three of all countries, except for the United Kingdom. In Serbia and Turkey, autonomy was relatively less important than having close relationships. External conditions were an important aspect of mental health in Turkey, Italy and Czech Republic. Rational reasoning and decision making was an important aspect of mental health in Serbia, Turkey and the United Kingdom. Notable is that the participants from Czech Republic did not mention rationality at all.

Discussion

This study investigated the conceptualisation of mental health in Europe among natural science and engineering students and if there were similarities and differences in conceptualisations across the seven European countries. Eleven aspects were mentioned to conceptualise mental health by lay students. First, the quality of interaction and relationships with others was valued the most. Second, negative or positive feelings and the stability of one's mood were mentioned often as a component of mental health. Next, all forms of rational thinking and decision making were included in the conceptualisation of mental health. In addition, participants mentioned the environment to be central to one's mental health, which includes genetics, finances, government and upbringing. Then, many mental illnesses and concepts related to mental illness were mentioned as a component of mental health. Moreover, the ability to cope with difficulties and the ability to adapt were included in the conceptualisation of mental health. Also, autonomy was mentioned to be a component of mental health which includes self-esteem, self-love, self-knowledge and personal reflection. Furthermore, abstract concepts as being in harmony, feeling balanced and having an inner sense of peace were mentioned as aspects of mental health. Then, achievement, success and attitudes towards studies and work were mentioned as components of mental health. In addition, aspects of daily functioning, such as nutrition, quality of sleep and having a good work-life balance were mentioned to be central to one's mental health. Lastly, behaviour that was not related to social behaviour was mentioned as an aspect of mental health including stability and consistency of behaviour. These findings help to shape a broader understanding of the lay students conceptualisation of mental health to ultimately improve mental health research and mental health care.

Comparison with other studies

The conceptualisation of mental health by students in this study can be presented through existing literature. For example, the medical model of mental health described mental health in terms of mental illness or the absence of mental illness (Maddux, 2002). In this study, mental illness was also included in the conceptualisation of mental health, but it was only a small part of the conceptualisation. This is in line with the two continua model that shows that positive mental health and mental illness are related, but form two different dimensions of mental health (Westerhof, & Keyes, 2010). Positive mental health was conceptualised as emotional well-being, psychological well-being and social well-being. The students in this study conceptualised mental health with experiencing negative or positive feelings, including life satisfaction. This is the same as the definition of emotional well-being

(Keyes, 2007). Moreover, students found autonomy to be of importance in the conceptualisation of mental health. This is coherent with the six-factor model of psychological well-being (Ryff, 1989). However, this model also includes environmental mastery in its conceptualisation, which "emphasizes the ability to choose or change the surrounding context using physical or mental actions as well as being able to control events." (Ryff, 1989). Some aspects of this conceptualisation are in line with the conceptualisation of mental health by the students in this study as they include being able to cope with everyday life, difficulties and stress. Furthermore, social well-being (Keyes, 1998) and social functioning mentioned by the students are similar to each other. In addition, the self-determination theory by Ryan and Deci (2000) also mentions autonomy and relatedness as a component of positive mental health. However, they also mention competence as a aspect, which is not specifically mentioned by the students in this study, but has some overlap with the concept of achievement and success. The students focus more on achievement and being successful than learning skills and challenging oneself. Furthermore, the conceptualisation of mental health by students is also partially in line with definition of mental health by the World Health Organisation (2020). Both cover autonomy, social functioning, daily functioning and coping. Concluding, aspects such as autonomy, social functioning, daily functioning, coping, achievement, feelings and mental illness are covered in the conceptualisation of mental health by theorists and the students of this study.

The importance of lay perspectives was highlighted in this research. Many mental health conceptualisations mentioned by theorists, were also mentioned by laypeople. Although, laypeople added more aspects related to the conceptualisation of mental health. Students in this study mentioned harmony as an aspect of mental health. This included spirituality and religion, which is in line with the study of Willenberg et al. (2020). Willenberg et al. (2020) also added school pressure to the conceptualisation of mental health, which was also frequently mentioned by the students in this study. Besides, the students mentioned external conditions to be of great influence on one's mental health which is supported by Armstrong et al. (2020) who found that external conditions such as bereavement and bullying had a bad influence on one's mental health. Moreover, having a good work-private balance and having leisure time was mentioned as an aspect of mental health by the students, which is in line which the study of Hall et al. (2016).

However, one result differs from all other theories and conceptualisations of mental health. Namely, the students found rationality to be an important aspect of mental health, since it was the third most mentioned aspect by the students. Whereas, rationality has not been

mentioned in other theories and conceptualisations of mental health. This might be due to the fact that this study investigated conceptualisations of mental health among university students. Students at university are thought to think logically and thought to solve problems, especially among natural science and engineering students. That might be the reason that university student found rationality to be an important aspect of mental health.

Cultural trends

The second aim of this study was to examine cultural trends between the conceptualisations of mental health across seven European countries. One aspect central to mental health was mentioned by all seven European countries as important. This was the importance of having good relationships with friends and family. Furthermore, two main trends across these seven European countries were identified. The first trend was that autonomy was relatively less important than having close relationships in Serbia and Turkey. This may be explained by the cultural differences between individualistic and collectivistic countries, since Serbia and Turkey can be classified as collectivistic countries (Hofstede, 2001). Balkir et al. (2013) argued that cultural differences do not need to be overlooked when it comes to the self-determination theory by Ryan and Deci (2000). Balkir et al. (2013) stated that collectivistic countries value relatedness more than autonomy, which is in line with the results of this study. However, Balkir et al. (2013) also stated that individualistic countries value autonomy more than relatedness. This is in contrast with the findings of this study since there were no clear differences between autonomy and relatedness (referred to here as social functioning) across the individualistic countries.

The second trend involves external conditions as they were frequently mentioned by the participants from Turkey, Italy and Czech Republic as an aspect of mental health. This might be explained by the Hofstede Model of National Culture, which has six dimensions that represent cultural preferences of countries (Hofstede, 2001). One dimension of this model is Indulgence, which presents the level of allowing to do as one pleases. Turkey, Italy and Czech Republic all have a low score on this dimension, indicating that its societies are controlled and regulated by social norms and its citizens might feel restrained because of these norms (Hofstede, 2011). Another dimension in this model is Uncertainty Avoidance, which presents Turkey, Italy and Czech Republic all have a high score on this dimension, indicating that these countries want to avoid unknown situations as much as possible and therefore have strict guidelines on what is tolerant and acceptable behaviour (Hofstede, 2011). In these countries, its society has an emotional need for rules. Meaning, these countries have strict guidelines on what is tolerant behaviour and that people living in these countries tend to be

pessimistic because one feels restrained by social norms. Therefore, it is possible that external conditions are of great importance for these citizens mental health.

Strengths, limitations and implications for further research

This study has several strengths and limitations. A strength of this study is that the conceptualisation of mental health was investigated across multiple countries in Europe. In this way, similarities and differences were investigated between countries to see if there were cultural trends in the conceptualisations of mental health. Another strength of this study is that a second assessor participated in the coding process. Discussing and adjusting the coding scheme with the coders increased the reliability of the results. Krippendorff's Cu- Alpha showed a sufficient interrater reliability of the coding scheme. In addition, the use of semi-structured interviews is also a strength of this study. The qualitative approach allowed deeper insight and broad formulation of mental health. The questions were open and nondirective, so the participants could answer freely and without bias. Limitations regarding the semi-structured interviews were the administration and the transcribing. Since there were seven interviewers, one from every country, there were differences in administering the interviews. Some interviewers asked more follow up questions than other interviewers. This caused a difference in units of analysis between countries. Moreover, the interviews were held in the participant's native language and translated to English. It is possible that the meaning to the translated terms changed since it might not mean the same across all languages.

Another limitation of this study is it's sample size. The sample size of this study was too small to speak of clear cultural trends when it comes to differences in conceptualisations between countries. A bigger sample size would increase the possibility to discover trends between conceptualisations across countries. This can be achieved with a focus group interview, where the findings of this research are presented and discussed with lay students. In the focus group interview, it is important to give every participant the opportunity to give their opinion on the conceptualisation of mental health. Through a focus group interview, students discuss the outcomes, which will create in depth knowledge and possibly new insights.

Furthermore, this study only used a sample of the dataset that was collected across the seven European countries. The remaining data set contains administration of the same semi-structured interviews but with psychology students. It would be interesting to make a comparison between lay students and psychology students (can be considered experts) to see if there are differences in conceptualisations of mental health between the two student groups and to see if indeed lay perspectives are often overlooked in theories of mental health. The

analysis can be fine-tuned when including this dataset.

So, further research can help to fine-tune the conceptualisation of mental health among students to ultimately improve mental health research and mental health care.

Conclusion

Concluding, this cross-cultural, exploratory study found eleven aspects related to mental health; achievement and success, autonomy, balance, behaviour, coping and resilience, external conditions, feelings, harmony, mental and physical illness, rationality and social functioning. Seven European countries valued having good relationships with friends and family the most. Autonomy was relatively less important than having close relationships in collectivistic countries and external conditions were an important aspect of mental health in Turkey, Italy and Czech Republic. However, due to the small sample size, these conceptualisations of mental health may change, or the similarities and differences between countries might become more extensive when using a bigger sample.

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Appendix

Interview questions

1. What comes to your mind when you think of mental health? (If interviewee needs help: whatever comes to your mind; say words, sentences, images, associations)
2. Going more into detail, what components of mental health can you think of?
3. Do you know anyone who is mentally healthy? What makes you think that? Can you explain?

a. (SUB-Q1: If interviewee cannot think about anybody in Q3) If no one comes to your mind, can you imagine a person who is mentally healthy? What makes you think that? Can you explain? (go on with Q5)

4. Can you think of another person who is mentally healthy? What makes you think that? Can you explain?

5. Do you know anyone who is not mentally healthy? What makes you think that? Can you explain? (If interviewee needs help: you don't have to name the person, just think of her or him)

a. (SUB-Q1: If interviewee cannot think about anybody in Q3) If no one comes to your mind, can you imagine a person who is not mentally healthy? What makes you think that? Can you explain? (go on with Q5)

6. Can you think of another person who is not mentally healthy? What makes you think that? Can you explain? (If interviewee needs help: another person that comes to your mind, this person does not have to be similar to the first one)

7. Among the aspects you mentioned, which ones do you think are more important and which ones are less important components of mental health?

8. What would other people associate with mental health, if they were asked like you? Would they mention different or similar components than you did?

a. Which components would be the most important for them?

9. Think aloud please while answering the following question. I am interested in your personal opinion and hearing everything that comes to your mind as well as the reasoning behind your answer. Overall, at this point of time, can you estimate what percentage of people in general are mentally healthy?

10. Considering everything that we have talked about, how would you describe mental health?

11. How did you find the interview? Do you have any recommendations? Do you think these questions capture your understanding of mental health well enough or should we ask differently?