The role of psychological well-being in laypeople's definitions of flourishing during the pandemic in a text mining study

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Abstract

Introduction. Understanding flourishing is a frequently researched topic as it is a strongly desirable state of being associated with many health benefits. Nevertheless, past research has addressed the issue that theoretical definitions of flourishing might not include all aspects of laypeople's understandings of flourishing. Therefore, the overall aim of the present study was to investigate to what degree theory and laypeople's conceptualizations coincide. Examining whether laypeople's definitions of flourishing have changed in demanding times such as the past Covid-19 pandemic could provide further indications on the stability of such definitions. Dimensions of psychological well-being were found to have had a positive influence on well-being during the pandemic. Hence, this study investigates how these dimensions were represented in laypeople's definitions and how they differed before and during the pandemic.

Methods. The qualitative study used a between-subject cross-sectional design. The data was used from three independent samples drawn before and during the pandemic, in the years 2019 (N=82), 2020 (N=38) and 2021 (N=98). A qualitative online survey with open-ended questions inferring about laypeople's conceptualisations of flourishing was employed. The participants answers were analysed with the text mining approach topic modelling.

Results. A minimum of ten out of 14 topics of each topic model corresponded with psychological well-being dimensions, with at least four out of six psychological well-being dimensions matching topics in every model. The degree of representation of each dimension varied per year with *positive relations* showing the strongest increase. Descriptions of flourishing during the pandemic indicated a greater focus on closer and nurturing relationships between people. Further, an increased representation of *autonomy* was visible. The respective descriptions reflected a stronger need for a sense of agency during the pandemic.

Discussion. The strong representation of psychological well-being dimensions indicated more similarities than differences between theory and laypeople's definitions. Since this representation remained strong, even with slight variations, definitions of flourishing appear to be stable in challenging times. These slight variations however could serve as guiding points for future research and interventions targeting the protection of well-being in challenging times. Further, for future research it could be advisable to use within-participant measures when wanting to gain deeper insight into the stability of flourishing in times of adversity.

Keywords: flourishing, definitions, qualitative, psychological well-being, Covid-19, stability, text mining, topic modelling

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For many people, living a flourishing life is a highly desired goal. Not only are flourishers seen as those who experience high emotional, social, and psychological well-being (Keyes, 2005), they are also less prone to develop physical diseases (Keyes, 2007) or mental disorders (Schotanus-Dijkstra et al., 2016). In Huppert and So's (2013) operational definition of flourishing, an individual flourishes when they experience positive emotions, show many positive characteristics such as emotional stability and show great positive functioning such as competence or positive relationships. However, according to Hone et al. (2014) many conceptualizations of flourishing are highly theoretical and might not necessarily coincide with laypeople's descriptions of flourishing. Similar findings of Holschneider (2021) indicate that laypeople's conceptualizations of flourishing were not entirely covered by well-known flourishing frameworks provided by Keyes or Seligman. This suggests that such existing models do not necessarily fully capture laypeople's experiences of flourishing (Holschneider, 2021). However, according to Entwistle et al. (1998) health research can benefit from the viewpoints of laypeople as they can shine a light on their experiences, struggles and needs which could serve as an asset in the design of effective health care services such as interventions. Hence, one could argue that by researching laypeople's definitions of flourishing one can arrive at a more comprehensive understanding of their experiences, of what helps people flourish and how one could support people to reach a flourishing state in their lives. This support seems especially important in times of adversity like the recent Covid-19 pandemic, which had a large negative effect on people's well-being all over the world (McCracken et al., 2021). Therefore, it appears to be equally valuable to investigate whether these understandings of flourishing are subject to change in adversity, possibly providing additional information on the stability of conceptualizations of flourishing.

So far, most of past research on flourishing has been of quantitative nature (Hefferon et al., 2017) examining aspects such as epidemiology (Schotanus-Dijstra, 2016), with too few studies investigating the individual experiences of flourishing people in a qualitative way (Hefferon et al., 2017). Qualitative research, however, offers the opportunity to gain insight into how individuals think or feel about a concept, described in their own words (Hefferon et al, 2017). For the present study, this implies that to gather such in-depth information on laypeople's definitions of flourishing, qualitative research can be seen as the best option.

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Mental well-being and mental health

When looking at the theoretical concept of flourishing in more detail one will find it is closely intertwined with mental health. In the World Health Organization's definition of mental health, it is made clear that mental health does not solely refer to the non-existence of mental illness (2004). Instead, mental health comprises of a high level of well-being which leads to an individual functioning well in their lives as well as in society (WHO, 2004). This statement corresponds with the two-continua model of mental health saying that mental well-being and mental illness are part of two separate axes that aid in defining an individual's state of mental health (Keyes, 2005). More specifically, scores on the mental illness axis describe whether an individual can be considered as mentally ill or not, whereas scores on the mental well-being axis refer to the individuals' specific degree of mental well-being varying from languishing to flourishing (Westerhof & Keyes, 2010).

Past research has identified mental well-being as consisting of hedonic or emotional well-being, and of eudaimonic or social and psychological well-being (Westerhof & Keyes, 2010). Together, all three components of well-being, emotional, social, and psychological well-being, have 14 underlying dimensions (Keyes, 2002). Keyes identifies hedonic well-being as states of happiness, life satisfaction and interest in life. Ryff (1989) postulates that psychological well-being consists of the six components self-acceptance, purpose in life, autonomy, positive relations, environmental mastery, and personal growth. Lastly, social well-being is composed of social coherence, social acceptance, social actualization, social contribution, and social integration (Keyes, 2002). When a person scores high on all three well-being components, they are considered to have a high degree of mental health and are defined as flourishing in life (Keyes, 2005). Contrary, if they show low scores on the well-being components they can be seen as languishing in life. Adults that score neither low nor high on these components are thought of having moderate mental health (Keyes, 2005).

Flourishing and psychological well-being

Since, arriving at a flourishing state can be seen as desirable, it could prove valuable to have a closer look at what exactly differentiates flourishers from languishers in life in order to know how to best promote mental well-being. In a recent study using three cross-sectional survey design studies, it was found that eudaimonic aspects seem to play a major role in the lives of flourishers (Wissing et al., 2021). All three studies had quantitative and qualitative

components, with the latter making use of open-ended questions (Wissing et al., 2021). The researchers found that people with differing mental well-being states, ranging from languishing to flourishing, seem to have a different focus on the importance of meaning, goals, and relationships in their lives. More specifically, it was discovered that the answers given by languishing participants reflected a hedonic focus with aspects such as fulfilment of needs and happiness being on the foreground. On the contrary, flourishers responded in ways indicating an outward focus on humanity instead of on the self and thus showed a more eudaimonic focus (Wissing et al., 2021).

Elements of this eudaimonic focus are mirrored in the six dimensions of psychological well-being as they reflect this sense of meaning in life that goes beyond the self. For example, the dimension *Purpose in Life* implies an inner feeling of connectedness to a guiding purpose as well as an inner drive to live according to it (Ryff, 1989). *Personal growth* refers to making novel experiences that offer the chance to self-connect and to grow and transform parts of oneself. *Self-acceptance* refers to an inner contentment with oneself, with one's attributions and experiences. *Autonomy* relates to an inherently motivated, self-sufficient, and driven approach to life. *Environmental mastery* describes the ability to oversee all areas of one's life where possible, as well as the ability to shape one's life to one's satisfaction. *Positive relations* describe the presence of close, meaningful, and mutually supportive relationships with other people (Ryff, 1989). Thus, aspects of these dimensions could be seen as reflecting opportunities for people to nurture a meaningful outward focus in life which could indicate that psychological well-being in particular seems to be involved in attaining a flourishing state.

This is further reflected in a recent quantitative survey design study by Graham and Eloff (2022), of which it can be deduced that especially the psychological component of well-being plays an important role regarding mental well-being during the recent Covid-19 pandemic. The researchers found that student's well-being decreased in connection with a reduced sense of capability in nourishing relationships or their participation in their usual pursuits during that time. However, it was raised at the same time through an increased sense of environmental mastery and opportunities for growth (Graham & Eloff, 2022), suggesting the possible value of focussing on psychological well-being during times of adversity.

Flourishing in times of adversity

As findings of Elemo et al. (2022) state, even in hardships such as those imposed by the pandemic there is a possibility for people to accommodate to challenging times and use

resources to shift towards a positive approach and flourish in their lives. The Covid-19
pandemic and its severe consequences have had a significant impact on many people's lives all
over the world, leading to a decrease in well-being and increase in mental illness for some
people (Daly, et al., 2022; O'Connor et al., 2021). Heavy restrictions on social and work life,
the introduction of social distancing and self-isolation posed a big challenge to many people
(O'Connor et al., 2021). Various studies have found a significant decrease of well-being as a
reaction to the outbreak in 2020 among many citizens, as well as the onset or increase of mental
illnesses such as depression, anxiety, or insomnia (McCracken et al., 2021). Nevertheless, not
everyone's level of well-being declined, indicating possible resilience factors that can play a
role in the protection against the challenging effects of the Covid-19 pandemic (Gallagher,
2021). These resilience factors might be connected to the dimensions of psychological well-
being, underlining the need for further research on how exactly these dimensions are
represented in descriptions of flourishing from laypeople throughout times of adversity such as
the recent Covid-19 pandemic. Nevertheless, to the researcher's knowledge, to date there are
no qualitative studies that examine the representations of psychological well-being in
laypeople's definitions of flourishing in times of adversity such as the Covid-19 pandemic.
Hence, the need for further research on this matter remains.

The value of text mining for this study

A lot of past qualitative Psychology research applied thematic analyses in their studies
to analyse their text data (Gough & Lyons, 2016). For the present study, in order to analyse
laypeople's definitions of flourishing throughout the pandemic high volumes of text data will
have to be analysed. The ability to analyse such high volumes is a big advantage of text
mining methods (Smink et al., 2019 and has thus been applied in the present study. One of
these methods is topic modelling which was chosen as it can find latent connections between
words and generate meaningful topics of text data (Nikolenko et al., 2017). For this study, this
implies that topics found in the participants answers can aid in understanding how people
define flourishing and how words connected to psychological well-being are represented in
these topics. So far, no studies exist that examine definitions of flourishing and their overlap
with mental well-being dimensions using a text-mining approach.

The current study

The aim of this study is to investigate how Keyes' dimensions of psychological well-being are represented in laypeople's definitions of flourishing. Further, the aim is to outline how these representations differ before and during the Covid-19 pandemic in the years between 2019 and 2021. It is expected that laypeople's definitions largely overlap with common theories on psychological well-being and flourishing. Additionally, it is expected that these definitions have not changed to a great degree in challenging and unpredictable times such as those brought about by the pandemic.

Methods

Design

A between-subject cross-sectional design was used for the qualitative study. The data was collected from three independent samples which were undertaken in April 2019, 2020, and 2021 and all used a qualitative online survey with open-ended questions exploring the participants' perceptions of flourishing. Ethical approval was granted for the data collections by the Ethics Committee of the Behavioural, Management and Social Sciences Faculty of the University of Twente.

Participants and Procedure

The participants were found through convenience sampling in which Bachelor Psychology students at the University of Twente reached out to people in their social environment. This was conducted via various online platform such as "WhatsApp" as well as by reaching out in person. The inclusion criteria were to be a minimum of 18 years old, to be fluent in the German language, to have access to the internet as well as be in possession of an email address. Further inclusion criteria were full completion of the entire online survey including two open-ended questions which they had to answer in the German language. If participants failed to do so or did not meet any of the other the inclusion criteria, they were removed from the study. All three studies used an online survey created via Qualtrics. The link to the online survey was sent to the participants via email, leaving them one week to activate the link and participate in the study. In 2019, 122 participants participated, in 2020, 51 participants participated and in the study of April 2021, 153 participants participated. Each survey began with familiarizing the participants with the study and informing them about the aim of the study and their data usage. They were subsequently provided with a virtual consent

form which they were asked to complete. As a following step, the participants were asked to respond to two open-ended questions on definitions of flourishing.

The final sample constitutes of 218 participants with 82 participants from the 2019 study, 38 from the 2020 study and 98 from the 2021 study. The age and gender distributions within the datasets can be found in Table 1. A one-way ANOVA test of differences between three samples for age showed no significant difference across three samples for age $F(2, 227)$ = 1.37, p = .255. However, a Chi-squared test of independence for gender showed significant differences between samples for gender ($\chi2(2) = 11.18$, $p = .004$), demonstrating that in the 2019 sample there were slightly more males, and almost twice as many females than males in 2020 and 2021.

Table 1

Demographic Characteristics of the Participants from all Three Samples

	2019	2020	2021
Age, *M* (SD)	33.28 (15.44)	30.61 (15.12)	35.48 (16.35)
Gender, *n* (%)			
Female	37 (45.1)	24 (63.2)	68 (69.4)
Male	45 (54.9)	14 (36.8)	30 (30.6)

Materials

Two open-ended questions were used in all three studies. The first question was: "*Please describe one or more situations wherein you flourish: What do you do? What do you feel? What do you think? When you describe such situations, try to think about how you function as a person in relation to others and/or how you function as a person in relation to society.*" The second question was: *"Now think of a person who, in your eyes, represents someone who is flourishing. Please describe this person: Why do you think this person is flourishing? How does this person behave? What is this person thinking or feeling? When describing this other person, try to think about how they function as a person themselves, how they function in relation to other people and/or how they function in relation to society."* The participants were instructed to respond to these questions in text-form with 150-800 words for each question.

Data Analysis

To answer the research questions, the qualitative data derived from the questionnaires was analysed using the text mining method. Text mining is a wider term for automated methods that can analyse high quantities of text data (Smink et al., 2019), within which they can find patterns that offer insights into various phenomena (Yu et al., 2011). In order to apply the text mining technique, the *Orange* software was used. Orange is an open-source data analysis software program that offers the possibility of applying analyses such as data mining and data visualization (Demšar et al., 2013).

Data Pre-processing

After uploading the datasets to Orange and before topic modelling could be applied, the data was pre-processed (see Figure 1). Pre-processing text data can be seen as an important step in text mining and refers to the preparation of the texts for later analysis by distinguishing between helpful and unhelpful units (e.g., specific words) (Hickman et al., 2022). This includes the removal of meaningless data such as stop words and the transformation of words such as through uppercase removal or stemming. The data of the present study was pre-processed by applying punctuation removal, uppercase removal, number removal as well as stop word removal (see Figure 1). The latter is a process of removing meaningless words that do not add any helpful information for the data analysis (Hickman et al., 2022). Finding stop words in the text data was an iterative process that was repeated frequently throughout the data analysis. This is because more and more words were identified that did not add meaning to the topics and therefore were removed (see Appendix A). Examples of such stop words are "but" or "many". The words that were checked were found in the word list available through the word cloud tool in Orange. To distinguish between meaningful and meaningless words the words had to be searched for in the datasets in which their meaning could be derived from the context of the participants' answers. The words were split up between two researchers who first independently identified their meaning and secondly, discussed the meaning of each word and whether it should be removed. All meaningless words were subsequently added to the stop word list. Figure 2 visualizes the effect of pre-processing the data.

Figure 1

Flowchart of the Study Design

Figure 2

Word Clouds Before and After pre-processing the Text Data

1. Pre-processing	2. Post-processing

Topic modelling

The text mining method that is used for this study is topic modelling. This method works in an unsupervised manner and can identify latent topics from text data (Nikolenko et al., 2017). Additionally, it can identify relationships within the texts and documents (Jelodar et al., 2019). According to Lossio-Ventura et al. (2021), topics refer to collections of words that are

connected and often appear in conjunction. A powerful possibility of topic modelling methods is that they can efficiently identify topics within a vast amount of textual data (Jelodar et al., 2019), which saves researchers a lot of time and eases comprehension of the data (Asmussen, & Møller, 2019). Nevertheless, topic modelling is not able to identify the entire meaning of the content accurately, which means it is necessary for a researcher to review and make sense of the generated topics (Asmussen, & Møller, 2019). The specific topic modelling method Latent Dirichlet Allocation (LDA) was used, which is a highly frequently used "state-of-the-art" probabilistic topic modelling method (Asmussen, & Møller, 2019). LDA generates topics of the text data based on word probabilities, in which the degree of probability of a word in a topic indicates how much it represents what the topic is about (Nikolenko et al., 2017).

In terms of answering the research questions, topic modelling can generate meaningful topics of participants' answers. These topics can give clues on how people define flourishing and in what ways words associated with psychological well-being are represented in those topics. To answer the first research question, the datasets of all three years 2019-2021 were jointly analysed with the LDA method. Before being able to interpret the topics one must tackle the challenge of identifying the ideal number of topics as this parameter can influence the effectiveness and usefulness of LDA (Hasan et al., 2021). The ideal number of topics is achieved when the topics are as precise as possible whilst time-efficiency of LDA is maintained (Hasan et al., 2021). According to Hasan et al. (2021), several methods exist to determine this ideal number, one of them using the coherence score as a guide. The coherence score shows to what extent the topics generated by LDA correlate with each other, with a higher score indicating a larger possibility of having precise topics (Hasan et al., 2021). To find the ideal number of topics, the coherence scores for the first 14 topics (N=1 to N=14) were plotted in a graph. This enables the application of the elbow technique which refers to determining the smallest number of clusters (K) which also reports a low sum of squared differences (D'Silva, & Sharma, 2020).

After the final and optimal number of topics were identified, the topics were first interpreted by making sense of and labelling each topic. This was done by searching for the separate words in the respective datasets to get an understanding of the words' meaning in the context of the participants' answers. After having gained an understanding of the separate words, a summarizing label for the topic was formulated. This process was carried out by two researchers independently, who later compared their labels for each topic and jointly determined final labels. After labelling the topics, these were compared to the separate

dimensions of psychological well-being, which can be found in Table 2. Similarly, this step was carried out by the same two researchers independently and subsequently compared. Next, the two researchers came to an agreement on the results of how the dimensions of psychological well-being were represented in the descriptions of all participants.

The reasoning behind using two researchers for the analysis was to gain insight into their inter-rater agreement concerning the labels and matches to psychological well-being dimensions. Inter-rater agreement measures can aid in showing to what extent the codes found by multiple researchers overlap (Gisev et al., 2013). As a risk of confirmation bias was suspected, including an inter-rater agreement score was thought to be valuable. Confirmation bias describes a phenomenon in data analysis in which a researcher looks for clues in the data that confirm their pre-set expectation or opinion (McSweeney, 2021). On average an inter-rater agreement of 76.18% was found.

To answer the second research question, two documents with the datasets of 2019 and 2020-2021, were analysed separately with LDA. This is because the focus for the second research question lays in identifying how representations of psychological well-being differ before and during the pandemic. Therefore, two analyses of the data, before and during the pandemic, are needed. The same process of data pre-processing was applied to the separate datasets as well, including the same stop word list. Subsequently, the two outputs with the several topics were interpreted and compared by the two researchers in the same manner as before. As a last step the two researchers agreed on how the representations of the dimensions of psychological well-being within the topics differed before and during the pandemic.

Table 2

*The Six Psychological Well-Being Dimensions with their Respective Definitions (*Ryff, 1989)

Name of Dimension	Definition of Dimension
Self-acceptance	"High scorer: Possesses a positive attitude toward the self; acknowledges and accepts multiple aspects of self […]"
Positive relations	"High scorer: Has warm, satisfying, trusting relationships with others; is concerned about the welfare of others; capable of strong empathy, affection, and intimacy […]"

| Name of Dimension	Definition of Dimension
Autonomy	"High scorer: Is self-determining and independent; able to resist social pressures to think and act in certain ways; regulates behaviour from within […]"
Environmental mastery	"High scorer: Has a sense of mastery and competence in managing the environment; controls complex array of external activities; makes effective use of surrounding opportunities […]"
Purpose in life	"High scorer: Has goals in life and a sense of directedness; feels there is meaning to present and past life […]"
Personal growth	"High scorer: Has a feeling of continued development; sees self as growing and expanding; is open to new experiences; has sense of realizing his or her potential […]."

Results

Coherence scores were plotted in a graph to be able to identify the elbow that could indicate the ideal number of topics (see Figure 3). Unfortunately, it was not possible to identify an elbow within the graph. Hence, a theory-based approach was used instead. Since there are 14 well-being dimensions, it was found suitable to set the number of topics the programme Orange should generate to 14 topics. As flourishing can be seen as consisting of 14 well-being dimensions, it was expected to find at least 14 relevant topics within the participants answers.

Figure 3

Plot of Coherence Scores for Topic Numbers (N=1 to N=25) for 2019, 2020-2021 and 2019-2021
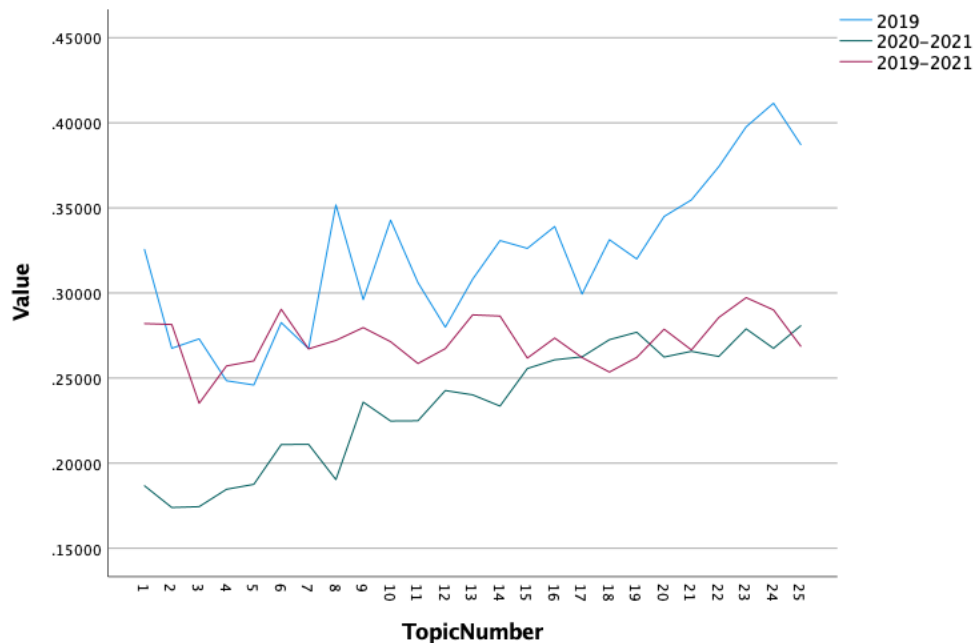
Representation of psychological well-being within definitions of flourishing

For the first research question the aim was to identify topics that describe flourishing from all three years (2019-2021) and compare them to the psychological well-being dimensions. The LDA found 14 topics of which five were fitting to the positive relations dimension, two to the purpose in life dimension, two to the personal growth dimension, one to the self-acceptance dimension and none to the Autonomy dimension (see Table 3).

Table 3

14 Topics Generated by Orange of the Participants' Answers from 2019-2021 and their Fit to the Psychological Well-being Components

Topic Label	Words	Fit to PW dimension
1: Self-expression and Self awareness	time, look forward to something, important, happy, world, to live/life, private, personally, to see, language	Self-acceptance
2: Reconnecting with others and nature	happy, nature, to live/life, work, joy, time, friends, family, to experience something, across from	Positive Relation

Topic Label	Words	Fit to PW dimension
3: Seeking and cherishing experiences	happy, simple, music, happiness, to travel, to transfer, shower, moment, across from, themes	Personal Growth
4: Connecting and contributing to the world and society	joy, to sing, happy, vision, society, theme, to help, centre, moment, emotions	-
5: Competence /environmental mastery	society, work, fun, time, happy, family, simple, to live/life, probably/well-being, friends	Environmental Mastery
6: Positive focus through active mind and body	simple, thoughts, moment, to experience, happy, manner, sport, positive, society, to live/life	Purpose in Life
7: Care and guidance as social contribution	to live/life, work, to experience, friends, family, joy, positive, mother, simple, thoughts	Positive Relation
8: Meaning in life	time, work, to live/life, positive, family, important, manner, happy, simple, friends	Purpose in Life
9: An appreciative and supportive work environment	work, happy, across from, to live/life, to experience, time, thoughts, behaviour, knowledge, boss	Positive Relation
10: Feeling of emotional safety, security, acceptance	happy, to live/life, simple, time, family, being content, important, together, work, surroundings	Positive Relation
11: Living and teaching resilience	simple, happy, to try, grandfather, to help, positive, to live/life, joy, society, manner	Personal Growth
12: Being fulfilled by one's relations	to live/life, society, work, being content, surroundings, happy, simple, joy, family, important	Positive Relation

Topic Label	Words	Fit to PW dimension
13: Social awareness and functioning	happy, intentional, friends, time, work, society, to say, simple, to live/life, to function	-
14: Appreciation of simplicity of life	to live/life, time, important, happy, fun, simple, society, positive, everyday life, children	-

Positive relations

The dimension of positive relations fits well to five of the topics. The first of these five is 'Reconnecting with others and nature' which refers to the participants connecting with each other, for example by spending time in nature or by doing an activity together. For some people this also included connecting to the present moment with each other or alone. It fits to the positive relations dimension in so far, as they both refer to positive and meaningful connections with other people. This is similar to the topic 'Feeling of emotional safety, security, acceptance' which describes the feeling of having a trusting and safe bond with meaningful people, with whom one feels at home. The participants described this feeling as knowing each other well, understanding each other and feeling like one belongs together.

The next well-fitting topic is 'Care and guidance as social contribution' which describes the participants need to give or receive motherly care and guidance. Oftentimes, in the answers of the participants mothers were described as an inspiration in caring for others and was seen as an important value in society. Hence, the topic includes that need for such care in society, either as the receiver or the giver of care. It fits to the positive relations dimension as it includes the affectionate care and compassion for others. Another topic that is included by the positive relations dimension is 'An appreciative and supportive work environment'. It describes the need of the participants to feel that their work is valued and appreciated by their colleagues and bosses as well as that the team lifts one another up through mutual support. This includes a sense of reflection about one's own and others' behaviours. The dimension of positive relations includes valuing each other and nurturing relationships through supporting each other and is thus a good fit. The last topic is 'Being fulfilled by one's relations' which describes a feeling of satisfaction and fulfilment with one's relationships in life. This satisfaction and feeling of content occurs in various social areas of life. Participants described situations with friends,

family as well as work colleagues. That topic fits to the positive relations dimension as is refers to relationships that are positive in nature which aligns with the topic's theme of being content.

Purpose in life

The purpose in life dimension fits well to two topics. The first of these two is 'Meaning in life' which describes the participants need to spend time on things that are important to them and give their lives more meaning for them to arrive at a flourishing state. This includes spending time with family, having a fulfilling job or being able to be present in the here and now. The dimension purpose in life is an immediate fit, since it describes the same elements of engaging in activities that reflect meaning, goals, or a purpose in life. The second topic that fits well is 'Positive focus through active mind and body'. It describes the participants experiences of living a life with a positive focus through keeping their body and mind active. Such activities include physical exercise, being active in nature or being cognitively flexible by not letting negative thoughts dominate their lives. As the purpose in life dimension includes having a goal or a purpose one wants to work towards and that fulfils the individual in a positive way, it is found fitting to this topic. One could say, that striving for a positive focus could be a goal or purpose in life for some.

Personal growth

The personal growth dimension fits well to two topics. One of these topics is 'Seeking and cherishing experiences'. It refers to the participants describing cherishing the present moment and meaningful experiences as well as being open to new experiences such as those experienced when travelling to new places. The most fitting psychological dimension is personal growth as the latter includes an openness to new experiences which could help the person to grow and flourish. The second well-fitting topic is 'Living and teaching resilience' which refers to the participants descriptions of valuing and admiring resilience in life. Within the answers one could see that past generations were described as having a sense of endurance and resilience, which was described as an inspiration for the younger generations. Part of that resilience was to maintain a positive and uplifting perspective on life even in the face of hardships and to maintain a sense of carefreeness. The most fitting dimension is personal growth as learning from experiences and building resilience can be seen as growing in life and growing to be the person one might desire to be.

Environmental mastery

The environmental mastery dimension is an immediate fit to the topic with the same name. The topic describes the need of the participants to have the feeling of managing all areas of their lives well, as well as experiencing joy from various parts of their lives such as work, family, or leisure time. Therefore, the topic fits well to this dimension as the latter includes the described feeling of competence in all areas of life.

Self-acceptance

The dimension self-acceptance fits to the topic of 'Self-expression and Self-awareness'. The topic describes a person's need to express themselves through language use and through activities that bring joy to oneself in one's leisure time. Furthermore, it also describes being self-reflected and self-aware as part of the self-expression process. Knowing yourself and how you want to express yourself is the sentiment some participants described. The self-acceptance dimension could fit slightly as it includes knowing yourself well and being reflected in order to accept yourself the way you are.

Differences in the representations of psychological well-being

Before (2019) and during the Covid-pandemic (2020-2021), some differences were found in the representations of psychological well-being in the definitions of flourishing (see Table 4). Firstly, the number of representations of the positive relations dimension in the topics increased for the years 2020 and 2021 compared to 2019. Secondly, the number of representations of the purpose in life dimension in the topics decreased for the years 2020 and 2021 compared to 2019. Thirdly, the psychological well-being dimension of autonomy did not fit to any topics of the dataset of 2019. However, matches to two topics of the 2020-2021 dataset were found. And finally, the number of matched topics to the dimension personal growth increased from two to three topics during the pandemic. The topic models of the data from both the 2019 and 2020-2021 datasets can be found in the Appendices B and C.

Table 4

14 Topics Generated by Orange of the Participants' Answers from 2019, 2020 and 2021 and their Fit to the Psychological Well-being Components

Psychological well-being dimension	Topics from 2019	Topics from 2020 and 2021
Autonomy	-	1: Self-determined way of living 2: Enthusiasm as a driving force
Environmental mastery	1: Environmental mastery 2: Work-life balance	-
Personal Growth	1: Generational resilience and positivity 2: Curiosity in life	1: Appreciation & curiosity of life 2: Resilience through positivity and open-mindedness 3: Growth through gratefulness
Positive Relations	1: Enjoying quality time with others 2: Mindful and Kind Connections	1: Staying true to yourself in meaningful connections with people 2: Appreciation of others contribution and awareness of responsibilities towards them 3: Being kind and present with friends and family 4: Inspiring and supporting others through positivity 5: Reciprocated connections and closeness
Purpose in Life	1: Awareness of societal calling 2: Turning dreams into reality 3: Taking an active role in society	1: Living with intention

Psychological well-being dimension	Topics from 2019	Topics from 2020 and 2021
	4: Creating positive impact on the world	
Self-acceptance	-	-

When looking more closely at the differences in topics regarding the positive relations dimension, one can find a shift in focus on the quality of the relationships. In 2019, the two topics that were most fitting described the feeling of flourishing through spending meaningful, enjoyable, and fulfilling time with friends, family, or colleagues. In 2020 and 2021, the five fitting topics referred to supportive interactions between people in which they take time for each other, show kindness through supporting each other and nurture close relationships that allow them to let go and be themselves. Another shift in focus was found regarding the purpose in life dimension. The four fitting topics of the 2019 dataset describe the participants' experiences of feeling a calling in life to engage in an activity or a job that contributes to their happiness or the greater good of society. The topic that fit to the 2020 and 2021 dataset describes the sentiment of being present and mindful and engaging in tasks with an intention. It includes having a positive and clear state of mind as well as being able to cherish the moments one is experiencing.

Further, another important shift is visible for the autonomy dimension. The two topics that could be matched to the dimension in the 2020-2021 dataset described the desire to actively shape one's life, being goal-driven, being intrinsically motivated and being able to apply one's strengths in life. Contrary, the psychological well-being dimension environmental mastery fit to two topics before the pandemic and had no match to any topics during the pandemic. In the dataset of 2019, the two topics described the feeling of successfully managing all areas of one's life, including work, home life and leisure time, and to see desired results of one's work. And finally, for the personal growth dimension it was discovered that before the pandemic, two matched topics described a curiosity, enthusiasm, and motivation for new experiences, as well as a positive and endurant perspective on life even in difficult times. Of the data of 2020 and 2021, the matched three topics described describes the participants' experience of staying strong and resilient even in difficult and demanding times through keeping an open mind, trying to stay positive and applying gratefulness in their life as a source of strength. Further, they

described the feeling of being curious about new things, feeling inspired by life as well as engaging in uplifting activities such as spending time in nature.

Discussion

One goal of this study was to examine laypeople's definitions of flourishing and to investigate how the psychological dimensions were represented in those definitions. The other goal was to compare the representations of psychological well-being before and during the pandemic to investigate whether the definitions of flourishing changed in times of adversity. Further, the results of this study could give some insight into the overlap between laypeople's definitions of flourishing regarding the psychological dimension and well-known theoretical definitions such as those of Keyes (2002). A topic modelling approach with 14 topics was used to answer both research questions.

Results demonstrated that for each topic model of the years 2019 till 2021, a minimum of ten out of 14 topics match with psychological well-being dimensions and a minimum of four out of six psychological well-being dimensions are present in each topic model. Thus, when wanting to answer the first research question it is evident that the psychological well-being dimensions are strongly represented in the laypeople's definitions of flourishing in this study. The psychological well-being dimensions that were represented in all three topic models, with varying degree of representation, were positive relations, personal growth and purpose in life. One of the main findings is that the dimension that was represented the most in the definitions throughout the years was positive relations. The second main finding is that the dimension autonomy was more strongly represented in laypeople's definitions of flourishing during Covid-19 than before Covid-19. When wanting to answer the second research question it is evident that the representation of the psychological well-being dimensions did not change before and during the pandemic to a great degree. This gives rise to the assumption that psychological well-being seems to be an important constituent for reaching a flourishing state and that its importance is not easily shaken by challenging times. This is in line with the previously formulated hypothesis that laypeople's definitions would not have changed much throughout the pandemic. Moreover, the strong representation of the psychological well-being dimensions which are essentially based on theory, allows to draw the conclusion that the definitions of laypeople and theoretical definitions developed by experts seem to overlap greatly when considering the psychological well-being aspect of flourishing. This coincides with the second hypothesis expecting this overlap.

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Main findings

The fact that psychological well-being is strongly represented in laypeople's definitions is not surprising when taking past research on flourishing of Wissing et al. (2021) into account, who found a link between a predominantly eudaimonic perspective and the experience of flourishing. The first main finding that positive relations is the most frequently represented dimension in the dataset from all three years corresponds with findings of past research on flourishing and happiness. In Harvard's longitudinal study of human development, it was found that the presence of positive relations in people's lives was strongly related to the experience of well-being (Waldinger & Schulz, 2023). According to Waldinger & Schulz (2023), positive relationships can be seen as a source of strength and that by fostering them, people's happiness can be increased. Moreover, also the self-determination theory underlines the importance of the presence of positive relationships, as it includes *relatedness* as one of the three human needs in its theory (La Guardia & Patrick, 2008). It describes the human desire to have strong connections with other people that make them feel like they belong. In other theoretical frameworks such as the PERMA model by Seligman (2011) and the Mental Health Continuum model of Keyes (2002) the importance of experiencing positive relations in one's life to thrive in life and have a high level of well-being is also mentioned. Hence, the current study adds to these theories by positive relations having been the strongest dimension representing psychological well-being in the participants' definitions of flourishing.

What stands out regarding this dimension is the large increase in representations of the positive relations dimension for the years during Covid in comparison to before the Covid-19 pandemic. When taking a closer look at the data of 2020 and 2021 of the present study, it becomes evident that the descriptions of flourishing within social relationships circle much more around supporting and nurturing each other than is visible in the descriptions of the participants from 2019. Hence, the shift in focus to strengthening the bonds with each other by supporting each other in the pandemic stands out which is in line with past research. According to Bevan et al. (2023) challenges such as those created by the pandemic offer the opportunity for a social network to grow closer together and to increase the positive nature of the relationships. On top of that, Bevan et al. (2023) report that past research on close relationships in Covid-19 indicates that many people experienced positive repercussions of the restrictions in the pandemic. They were challenged to look inward and connect more with each other, like

for example by creating new social habits (Bevan et al., 2023). This shift in focus to nurturing positive relations during the pandemic suggests that the psychological well-being dimension positive relations can have a protective effect on well-being. Further, the psychological well-being component can be seen as crucial for reaching a flourishing state, especially in demanding times.

Nevertheless, positive relations is not the only influential dimension represented in the definitions of the participants during the pandemic. The second main finding is that the psychological well-being dimension of autonomy was neither represented in the 2019-2021 nor in the 2019 dataset but was represented in the Covid-19 2020-2021 dataset. A possible explanation for the increased representation of autonomy could be findings of past research stating that experiencing a sense of agency was an important influence on a person's mental well-being level in the Covid-19 pandemic (Tuason et al., 2021; Jenkins et al., 2021). A sense of agency describes an individual's perception of how efficacious and potent their actions are (Tuason et al., 2021). Hence, being able to have a sense of control over one's actions and feeling autonomous in one's decisions, even in the face of measures such as social distancing and working from home, is seen as strongly connected to experiencing psychological well-being during the pandemic (Tuason et al., 2021). It is, therefore, not surprising that the need for autonomy increased during the pandemic.

What is striking however is the lack of this dimension being represented in the dataset from all three years as well as in the 2019 dataset. According to Ryan et al. (2008) fulfilment of a person's need for autonomy, alongside the need for competence and relatedness as pillars of the self-determination theory, is a prerequisite for personal growth and mental well-being. Thus, this finding does not seem coherent to past research at first glance. Possible explanations for autonomy not matching any topics from the 2019-2021 and 2019 datasets could be that aspects reflecting the autonomy dimension might have been covered by topics describing the broader dimension of environmental mastery. The latter describes a desire to manage one's tasks, responsibilities, and areas of life in a proficient and autonomous way (Ryff, 1989). Thus, it could be seen as fitting well to both components, autonomy and competence of the self-determination theory. Therefore, one could hypothesize that aspects within the participants answers reflecting the experience of being autonomous could have been included in descriptions of experiencing environmental mastery. Moreover, as LDA examines connections between many words that are frequently mentioned together (Nikolenko et al., 2017), aspects

solely referring to being autonomous might have been too infrequent to be picked up by LDA
and included in a separate topic.

One of the remaining main conclusions when reflecting on the representativeness of the
psychological well-being dimensions before and after an adverse event such as the Covid-19
pandemic, is that the flourishing state appears to be a relatively stable construct. Even though
the number of the representations of a few dimensions within the topics varied, the presence of
several psychological well-being dimensions was discovered. This gives rise to the assumption
that psychological well-being seems to be an important constituent for reaching a flourishing
state and that its importance is not easily shaken by challenging times. This is in line with past
research such as that of Hauschke (2021), who utilized the same data as the present study and
explored what factors are key to the flourishing state. She identified six overarching categories
"type of contact, flow, personal competencies, mindset, simple joys and sense of self" and found
that key factors of flourishing do not tend to alter drastically in times of adversity (Hauschke,
2021). This could give rise to the notion that how people understand flourishing is not
significantly influenced by adverse events such as the Covid-19 pandemic. On the other hand,
one should take these conclusions with caution since they have been derived from the same
data.

The other main conclusion is that the definitions of flourishing by the laypeople of this
study and those developed by experts demonstrate a great overlap when looking at the
psychological well-being aspect of flourishing. Nevertheless, not all topics could be matched
to psychological well-being dimensions, which leaves the question open of whether they could
be matched to the two remaining components of well-being or whether no match to Keyes'
framework can be made. Similarly, past findings of Holschneider (2021) show a considerable
amount of overlap between laypeople's conceptualizations and theoretical frameworks like
those of Keyes. However, she also reported these conceptualizations as not fully covered by
said theories (Holschneider, 2021). Still, one can conclude that the high overlap within the
present study speaks for the accurateness of Keyes' (2002) model of mental health.

Strengths

A prominent and unique strength is the use of topic modelling for analysing laypeople's
definitions of flourishing as it can generate topics efficiently from a larger number of texts and
simplifies the interpretation of its' latent themes. After adjusting the number of topics in LDA
to the optimal number based on the coherence score, interpretation of the themes uncovered

from the participants answers could also be seen as more time-efficient and thus easier than other coding methods. This was especially beneficial as the LDA process was carried out three times with different datasets, which otherwise would be highly time consuming. Further, the LDA can work more specifically and detect nuances in topics that could not be detected by the human eye. Another strength is a good inter-rater agreement for the entire interpretation process of both the interpretations of the topics as well as the fit to the psychological well-being dimensions. As both researchers have spent a considerable amount of time with the data and might have been led to false conclusions by a confirmation bias, the inter-rater agreement score was included to give an indication towards the accurateness of the interpretations.

Limitations

A limitation is the slight misfit between the nature of the data which was previously collected for other studies and the use of LDA. Within the data, there was an imbalance in length of answers from the participants which has led to unequal representations of all participants' opinions in the data. Consequently, LDA cannot fully interpret the data in a fair manner as it does not differentiate between lengths of texts. It could have created topics based on responses of a limited number of participants if their texts were longer than the average length of the other participants' text. Further, some participants used emojis or made mistakes which hindered the researchers from being able to use some answers. Alongside this, either through length restrictions within the online survey or a formatting issue the researchers could not read all answers fully.

Secondly, another limitation is an imbalance in specificity of the topics based on whether the datasets were analysed separately or all at once. We noticed that the topics generated from all three years taken together are not as specific as when fanning the data out per year. This was especially noticeable when interpreting the data from all three years as the topics were quite broad and the researchers had to spend a considerable amount of time on scanning the answers for clues on how to best interpret the topics generated by LDA. Hence, the question is how representable the findings from the dataset from all three years can be when the topics are very broad.

Thirdly, a further limitation is that utilizing between-subject data restricts conclusions on how definitions change over time. Since, one cannot infer how the experience of flourishing changed for the same participants in the life-altering context of the pandemic, one cannot confidently link the slight changes that were seen in representations before and during the

pandemic solely to the nature of the context. These changes can also be subject to the data consisting of answers from different people with differing experiences and perceptions of flourishing. Therefore, the findings of this study can provide pointers for future research on the stability and overlap with theory such as the need for positive relations and autonomy, but it cannot provide certainty on future fluctuations of laypeople's understandings and experiences of flourishing.

The fourth limitation which is connected to the generalizability of the results is that the interview questions of the present study asked the participants about their own and their social network's experiences of flourishing and did not specifically ask for a complete definition of flourishing. Thus, the answers of the participants might not reflect their complete understanding, experience, and consequent conceptualization of what it means to flourish. The participants might experience multiple ways of flourishing and more ways than were asked about in the interview questions which might or might not fit to the theoretical definitions of flourishing such as the psychological well-being dimensions. This in turn slightly weakens the conclusions one can draw within this study about the overlap between laypeople's and experts' definitions of flourishing.

Recommendations

A recommendation for future research exploring laypeople's definitions of flourishing with LDA is to apply a stricter format for the answers to the interview questions that is part of the inclusion criteria for the use of the data. One should have a set minimum and maximum of words per question to avoid uneven lengths of texts between participants and thus an unfair distribution of emphasis on certain answers based on text length. Further, one should discourage the use of emojis and include a reminder to check one's answer for mistakes to increase the chance of using all the submitted data. Related to the set-up of the interview questions, one could ask the participants to think of multiple situations in which they and their social network experience flourishing to include more complete and varied conceptualizations of flourishing. The value of still examining their experiences lies in finding out about the nature of these flourishing moments and possible learning about what is needed to support people to flourish. If one only were to ask about their theoretical ideas of how to define it, one might not retrieve the valuable information on the elements of their personal experiences of flourishing. Hence, the recommendation is to ask for their own experiences yet put emphasis on them describing multiple situations.

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Another recommendation is to conduct the analysis of laypeople's experiences of flourishing with within-participant answers instead of using between-subject answers, so that it could be possible to see if or how the experience of flourishing might change for individuals when faced with adverse situations such as those imposed by the pandemic. This could be especially valuable when wanting to gain deeper insight into whether laypeople's definitions of flourishing can be considered as stable over time. Moreover, it allows for a clearer understanding of what might be needed for people to maintain or arrive at a flourishing state in times of adversity as the possible changes within a person could be detected. Identifying these needs could provide a much clearer picture of how one can help people protect and enhance their well-being when faced with challenging times such as by tailoring future mental well-being interventions to these needs in times of crises. For example, strengthening the positive reciprocal nature of close relationships could be a valuable angle for future intervention designs as it seems to be a crucial factor for well-being in times of crises.

Conclusion

The aim of this study was to increase the understanding of how laypeople define flourishing, especially when faced with the adverse and challenging event of the Covid-19 pandemic and to further gain knowledge about how psychological well-being is represented in those definitions. It became evident that the participants' descriptions of flourishing are consistent with leading well-being theories such as Keyes' model of mental health and the self-determination theory. Thus, it can be inferred that the definitions of the laypeople of this study and experts' definitions of flourishing overlap to a great extent. This conclusion supports the notion that such theoretical frameworks such as the one by Keyes continue to capture most of the reality of people's experiences of flourishing and can thus continue to be a useful tool when researching people's well-being. The aspects of the well-being theories that were not mentioned might be subject to the influence of external events like the Covid-19 pandemic which illuminated certain themes such as positive relations and autonomy. This discovery about the slight shift in representation of certain psychological wellbeing dimensions in the definitions of flourishing during Covid-19 could serve as guiding points for future interventions aimed at helping people flourish when faced with challenging times. The fact that even in times of adversity people could describe several accounts of experiences of flourishing inspires hope that it is not only possible to flourish in demanding times but also that future interventions

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targeting flourishers' needs could protect and boost mental well-being levels for many more people.

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Appendices

Appendix A – Stop Word List

Table 5

Stop Word List Used in the Analysis

ab	auch	bzw	denen	dem
aber	auf	d.h	denn	demzufolge
alle	aufgrund	da	der	den
allem	aus	dabei	deren	denen
allen	außerdem	dafür	des	denn
aller	befindet	daher	dessen	der
allerdings	bei	damit	desto	deren
als	beide	danach	dafür	des
also	beim	dann	daher	dessen
am	beispielsweise	dar	damit	desto
an	bereits	daran	danach	die
andere	besonders	darauf	dann	dies
anderem	besteht	daraus	dar	diese
anderen	bestimmte	darf	daran	diesem
anderer	bestimmten	darstellt	darauf	diesen
andernfalls	bestimmter	darüber	daraus	dieser
anders	bevor	das	darf	dieses
andersherum	bietet	dass	darstellt	doch
anfangs	bis	davon	darüber	dort
anhand	bleiben	dazu	das	durch
anschließend	bringen	dem	dass	ebenfalls
ansonsten	bringt	demzufolge	davon	eher
anstatt	bsp	den	dazu	eigenen
eigentlich	folgendes	heutigen	jeder	liegt
ein	folgt	hier	jedes	machen
eine	für	hierbei	jedoch	macht
einem	ganz	hierfür	jetzt	mal
einen	gegen	hin	jeweilige	man
einer	gehen	hingegen	jeweiligen	mehr
eines	gemacht	hinzu	jeweils	mehrere
einigen	genannte	hoch	kam	mensch
einiges	genannten	ihn	kann	menschen
einmal	gerade	ihr	keine	meine
einzelnen	gerne	ihre	kommen	meinem
entscheidend	gibt	ihren	kommt	meisten
entweder	gilt	ihrer	können	mich
er	gleich	im	konnte	mit
erstmals	gleichen	immer	könnte	mithilfe
es	gleichzeitig	immerhin	konnten	mittels

etc	habe	in	lassen	möchte
etwas	haben	indem	lässt	möglich
euch	hält	insgesamt	lautet	möglichst
flourishing	hat	ist	lediglich	momentan
folgende	hatte	ja	leider	muss
folgendem	hätte	je	letztendlich	müssen
folgenden	hauptsächlich	jede	letztere	musste
folgender	her	jedem	letzteres	nach

nachdem	seine	trotz	weiteren	wurden
nächsten	seinem	über	weiterer	z.b
nahezu	seinen	überhaupt	weiteres	z.b.
nämlich	sich	um	weiterhin	ziemlich
natürlich	sicherlich	und	welche	zu
neue	sie	uns	welchen	zuerst
neuen	siehe	unter	welcher	zum
nicht	sind	usw	welches	zur
nichts	so	viel	wenn	zusätzlich
noch	sobald	viele	wer	zuvor
nun	sofern	vielen	werden	zwar
nur	solche	völlig	wesentlich	zwecks
ob	solchen	vom	wichtige	z
obwohl	soll	von	wichtigsten	b
oder	sollen	vor	wie	i
oftmals	sollte	vorerst	wieder	e
ohne	sollten	vorher	wiederum	gefühle
per	somit	während	will	fühlen
personen	sondern	war	wir	gefühlt
person	sorgt	wäre	wird	fühlt
sämtliche	sowie	waren	wirklich	fühle
scheint	sowohl	warum	wo	denke
schon	später	was	wobei	beispiel
sehr	sprich	weil	worden	gute
sein	statt	weitere	wurde	gehe
abgesehen	zustand	besten	stehen	
fällt	sehen	leute	woche	
merke	guten	große	verbringen	
denken	aufblühen	meist	all	
denkt	blühe	sicher	passiert	
denke	vielleicht	generell	lage	
trotzdem	weniger	innehat	beschreiben	
manchmal	meisten	weise	bekomme	
tut	meistens	seit	neben	
dadurch	lebt	lange	erst	
nimmt	häufig	sei	sogar	
finde	sachen	grund	leisten	
dinge	genau	zwei	sache	
tag	sieht	paar	jemand	
situationen	empfinde	geht	momente	

situation	momenten	wenig		
gut	bezug	volle		
weiß	kenne	erkenne		
oft	heute	gar		
glaube	jahren	jemanden		
selber	dingen	eigene		
tun	fast	fall		
mache	klar	dennoch		
erlebt	selten	stets		

Appendix B – Topic Model of the Data from the 2019 Dataset

Table 6

*14 Topics Generated by Orange of the Participants' Answers from 2019 and their Fit to the
Psychological Well-being Components*

Topic Label	Words	Fit to PW dimension
1: Awareness of societal calling	Language, happiness, look forward to something, teacher, side, to experience, big, strong, short, soul	Purpose in Life
2: Generational resilience and positivity	happy, simple, grandfather, to eat, to change, to live/life, together, small, joy, negative	Personal Growth
3: social contribution as strength resource	work, happy, important, surrounding, family, time, to live/life, everyday life, across from, society	
4: Enjoying the simplicity of the world	to live/life, work, time, happy, world, family, society, important, simple, fun	
5: Environmental mastery	important, to live/life, to experience, simple, time, work, family, friends, especially, result	Environmental Mastery
6: Maternal care as an inspiration	to live/life, work, positive, better, time, woman, happy, mother, important, everyday life	
7: Curiosity in life	time, absolutely, work, society, interested, themes, surrounding, alone, important, plan	Personal Growth
8: Turning dreams into reality	to live/life, being content, studies, to study, to try, goals, dreams,	Purpose in Life

Topic Label	Words	Fit to PW dimension
	months, friend, tomorrow/morning	
9: Taking an active role in society	happy, society, simple, to say, role, surrounding, problems, to look forward to something, friends, correct	Purpose in Life
10: Enjoying quality time with others	happy, society, to experience, time, family, being content, friends, thoughts, work, fun	Positive Relation
11: Creating positive impact on the world	fun, world, happy, commitment, to commit to something, shop, positive, surrounding, to run, sincere	Purpose in Life
12: Infectious positivity	happy, family, woman, work, surrounding, positive, smile/to smile, daughter, positive, society	
13: Work-life balance	private, time, important, relation, requirements, personal, occupational, manner, tasks, friends	Environmental Mastery
14: Mindful and Kind Connections	happy, to live/life, to experience, across from, to behave, important, friendly, tasks, problems, work	Positive Relations

Appendix C - Topic Model of the Data from the 2020-2021 Dataset

Table 7

14 Topics Generated by Orange of the Participants' Answers from 2020-2021 and their Fit to the Psychological Well-being Components

Topic Label	Words	Fit to PW dimension
1: Staying true to yourself in meaningful connections with people	happy, time, manner, across from, work, friends, allowed to, meet, simple, tasks	Positive Relations
2: Self-determined way of living	to live/life, simple, positive, alone, right, manage, God, thoughts, beautiful, time	Autonomy
3: Living with intention	to live/life, joy, to experience, everyday life, society, consciously, connection, fun, thoughts, time	Purpose in Life
4: Appreciation of others contribution and awareness of responsibilities towards them	work, fun, society, to live/life, joy, happy, important, working, time, across from	Positive Relations
5: Being kind and present with friends and family	to live/life, to experience, time, society, simply, friends, everyday life, children, joy, friends	Positive Relations
6: Self-connection and connection to society	Children, to live/life, happy, money, plays, role, time, simple, satisfied, society	
7: Enthusiasm as a driving force	goals, to live/life, work, fully, to experience, everyday life, occurs/appears, enthusiasm, family, irrelevant	Autonomy
8: Inspiring and supporting others through positivity	to live/life, society, functioning, moment, time, fellow human beings, positive, joy, simple, positive	Positive Relations

Topic Label	Words	Fit to PW dimension
9: Appreciation & curiosity of life	to live/life, positive, simple, positive, society, joy, satisfied, new, nature, singing	Personal Growth
10: Reciprocated connections and closeness	happy, time, to live/life, love, together, work, right, moment, years, simple	Positive Relation
11: Appreciation of beauty as a source of strength	happy, simple, to live/life, nature, time, water, better, take, everyday life, see	
12: Resilience through positivity and open-mindedness	simple, positive, to live/life, work, good, nature, tried, positive, give, woman/wife	Personal growth
13: Growth through gratefulness	happy, society, friend/girlfriend, simple, heavy/heaviness, lightness/ease, important, heavy, to live/life, functioning	Personal Growth
14: Global awareness & solutions towards joy of all	happy, to live/life, tried, time, friends, world, friend/girlfriend, happiness, across from, say	