**Need-Satisfaction of the Components of the Self-Determination Theory and its Reflection in Psychological Well-Being**

Exploring the Fulfilment of the Needs of the SDT on basis of the Life Story Interview

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**Abstract**

Fulfilling the needs of the Self-Determination Theory has a positive influence on well-being. This need-satisfaction can be explored on basis of past experiences in different domains. One domain is nursing care, where the importance of satisfying the needs *relatedness*, *competence*, and *autonomy* was pointed out before. This might also be the case in other domains, for instance in older adult's care. Therefore, the current study investigates the need-satisfaction of *relatedness*, *competence*, and *autonomy* and its reflection within psychological well-being for people above the age of 75. Participants administered the Psychological Well-Being Scale (PWBS), which includes the same components as the SDT as subscales and determinants for a high psychological well-being. Additionally, it has been explored whether the three components of the SDT were facilitated or hindered during a person's lifetime on the basis of the Life Story Interview. Afterwards, the scores of the PWBS and the findings of the analysis of the Life Story Interview were compared. The findings illustrate a high psychological well-being for all participants. Additionally, when participants showed a high frequency of facilitating factors for *competence*, *relatedness*, or *autonomy* also the corresponding sub scale showed a higher score. Concluding, facilitating the fulfilment of the needs of the SDT within life stories corresponds with a high psychological well-being. The findings illustrate the importance of paying attention to need-satisfaction of *autonomy*, *relatedness*, and *competence* to enhance the psychological well-being in different domains.

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## Introduction

Life stories can give important insight into the human psyche and can therefore be taken as a foundation for scientific research. An appropriate instrument for investigating life stories is the Life Story Interview by McAdams (as cited in Foley Center, 2009). The current study uses this interview as a basis for exploring the life stories of older adults. The following introduction will first give an overview about life stories and what researchers and following all human beings can gain from them. Afterwards, it will be considered more specifically why the current study relies on these life stories for exploring the fulfilment of the components of the Self-Determination Theory.

Generally speaking, the life stories of individuals indicate who they are and moreover represent the environment in which their lives took place. They provide an extensive amount of information, which can be used as a basis for different kinds of investigation (McAdams, 2001). For instance, McAdams (as cited in McAdams, Reynolds, Lewis, Patten & Bowman, 2001) developed a basic framework in which life stories are set into relation with personality development. Hence, as a first aspect, life stories offer information about the development of a personality. In his framework McAdams argues that personality evolves out of three domains. The first domain offers information about the dispositional outline of an individual. The second domain provides the information of the need to understand a person as a whole within different contexts and terms. The life stories, which gain attention in domain three, describe how an individual shapes his or her personality with meaning, unity, and purpose. Besides offering information of these three different facets of personality development, life stories serve as a basis for more information, too.

This can be seen in other studies, exploring life stories in order to gain insights into human being's psyche. For instance, the study of Shmotkin and Shrira (2012) addresses *happiness* and *suffering* of people. The researcher explored whether the appearance of these two within a person's life story, influences the person's present subjective well-being. The findings illustrate that it is too simplistic to think that positive past events (*happiness*) lead to high present subjective well-being and negative memories (*suffering*) lead to a low subjective well-being. Rather each feeling of *happiness* or *suffering*, which individuals report about their past has its own unrivalled and complementary contribution to the present subjective well-being. Still, it can be said that the past has an influence on present well-being, which is individual for each human being, although it is not the case that a positive past automatically

leads to a high well-being. Other factors might be included here to get a clearer insight into which factors of the past lead to a high well-being in the present,

The study of Houle and Philippe (2017) is relevant within this context. This study also deals with well-being and past events. Additionally, the researchers included a theory, which specifies aspects that need to be fulfilled in order to achieve a high well-being, namely, the Self-Determination Theory. This theory compromises three different aspects, which are described as needs for well-being. According to Deci & Ryan (2012) these three needs should be satisfied in order to develop in a healthy manner. If this is not given different psychological problems might occur.

 First, individuals need to feel *competent* to deal with their external and internal environment (Deci & Ryan, 2002, 2012). More specifically, people search for challenges convenient to their capacities in order to constantly enhance one's skills through activity. Second, they need to feel *relatedness* to people in their environment or to groups. Individuals want to care for others and similarly feel that others care for them. Moreover, the belongingness to a group is of importance. *Relatedness* concerns the psychological sense of connecting to others and feeling secure with this connection. Third, they need to feel *autonomy* of their own life and behaviour. In detail, *autonomy* refers to the demand of self-regulation and integrity. It is of importance to act according to one's own values and interests in order to be autonomous.

Houle and Philippe (2017) measured the general well-being of the participants. Next, each participant was randomly assigned to either remember a negative or positive self-defining memory. Participants rated their need-satisfaction of this memory. The results illustrate that need-satisfaction was positively related to well-being. According to this, the three components of the SDT are determinants for well-being.

The link between life stories and the Self-Determination Theory can be found in other research, too. For instance, Bauer and McAdams (2000) cited several researchers and concluded that there is some connection between aspects of life stories and the Self-Determination Theory. To understand this link, first a closer look has to be taken on McAdams (as cited in Bauer & McAdams, 2000) who identified different facets shown in life stories. First, he recognized *communion* as an aspect within life stories, which illustrates the connection and relationship to others. More specifically he subdivided the aspect of *communion* into four main themes: 1. Friendship and love; 2. Interpersonal dialogue or sharing; 3. Connection with groups, society, or humankind and 4. Caring for or helping others.

The description of the facet *communion* can be linked to the SDT. Deci and Ryan (as cited in Bauer & McAdams, 2000) emphasize *relatedness* (need of the SDT) as the "desire to feel connected to others – to love and care, and to be loved and cared for" (p. 277). On the basis of this, Bauer and McAdams suppose that *communion* is the narrative expression of *relatedness*.

Moreover, a link between other facets of life stories and the components *competence* and *autonomy* can be seen. McAdams (as cited in Bauer and McAdams, 2000) referred to *agency* in the context of life stories. He specified four aspects of *agency*: 1. Having an impact on self, others, and environment; 2. Achieving desired goals; 3. Self-mastery and independence, in detail this means the sense of self as an individual agent, and 4. Status and prestige. Deci and Ryan (as cited in Bauer & McAdams, 2000) portray *competence* as the "propensity to have an effect on the environment as well as to attain valued outcomes within it" (p. 277). As can be seen, a link between all three components of the SDT and facets of life stories can be found.

Finally, the fourth aspect of *agency* does not show any kind of relation to *autonomy* according to the researchers. They explain this by the motivation of *autonomy* and *status* and *prestige*. *Autonomy* is related to intrinsic motivation and psychological well-being, whereas *status* is related to extrinsic motivation and lower levels of psychological health. Therefore, *status* and *prestige* cannot be included into the relationship between facets of life stories and the SDT.

Taking all findings together, first the literature review shows that past events can give important information about the present subjective well-being, whereas it is too simplistic to relate a positive past with a high well-being. However, Houle and Philippe (2017) take the Self-Determination Theory into account here. The researchers state that the satisfaction of the needs of the SDT increase well-being. Additionally, this was explored on the basis of past events. It can already be seen that the past can give insights about well-being with the SDT as a more specific indicator of well-being.

Still, the question remains whether we can analyse the past, so also a person's life story with the SDT. Here, the study of Bauer and McAdams (2000) can be taken into account. As explained above, their study shows the relation between life stories and the Self-Determination Theory. Hence, it can be stated that life stories can be used as a basis for examining whether the needs of SDT have been satisfied and can be set into relation to the current well-being.

Additionally, it becomes visible why the SDT can be explored through life stories within the study of McAdam's study stated at the very beginning (McAdams, Reynolds, Lewis, Patten & Bowman, 2001). McAdam's stated that seeing the person as a whole is especially important. Although he refers to personality development in this context, this aspect might be important for other investigations, too. While taking the Life Story Interview as a measurement the person can be viewed as a whole and the components of the SDT can be recognized within a specific context. Therefore, the Life Story Interview provides a good basis for exploring the needs of the SDT.

To conclude, analysing psychological well-being through the SDT and on the basis of life stories can be supported by two aspects. First, a link was shown between life stories and the SDT. Second, considering people as a whole is important, which is the case when exploring the whole life story. Thus, it is a good basis to recognize the components of the SDT within life stories in order to investigate a possible relationship to psychological well-being. By doing this, possible practical implications about how to influence well-being positively can be concluded. This displays the importance and relevance of gaining further insight about how a high well-being can be achieved.

Additionally, exploring the needs of the SDT and its influence on well-being is relevant because it is important within different domains. Kloos, Trompetter, Bohlmeijer, and Westerhof (2018) state that the fulfilment of the three needs is of special importance in nursing homes. Similarly, the care of older adults might have the same needs. Thus, for investigating the components of the SDT and how these are reflected in well-being, older adults will be consulted. Additionally, with this target group it is possible to gather much information, since these people have a long-life story to talk about. Thus, the current study concentrates on people above the age of 75.

On basis of this, the current study aims at answering the research question: "To what extent is the fulfilment of the needs of the Self-Determination Theory reflected in psychological well-being of older adults?".

<center>**Methodology**</center>

**Study Design**

In order to answer the research question, a mixed-methods design was applied, namely a sequential explanatory design (Ivankova, Creswell & Stick, 2006). This means that one quantitative measurement as well as one qualitative measurement is used. In the current study the quantitative measurement was administered first, followed by the qualitative measurement.

**Participants**

For investigating how the fulfilment of the needs of the SDT is reflected in psychological well-being, seven people above the age of 75 were consulted by purposive sampling. The participants were reached by the researcher personally, either face-to-face or personally by telephone. All participants were living in the same area in Germany, namely North Rhine-Westphalia in the rural district Steinfurt. Thus, the current living condition was the same for all participants. However, they might have lived in different areas during their lifetime.

One male participant needed to be excluded, because the interview could not be executed as intended since the participant was not able to answer the questions. Additionally, one interview was handled as a pilot study, while the data also were included into the data analyses. Thus, six participants remained, which were included in the analysis. The mean age was 86.5 years, with an age range between 77 and 99 years. Regarding the gender, the remaining sample consisted of four female and two male participants.

**Materials**

**Psychological Well-Being Scale**

Since the study deals with exploring the fulfilment of the needs displayed within the Self-Determination Theory and its impact on psychological well-being, a measurement for exploring the well-being was executed. Therefore, the Psychological Well-Being Scale (PWBS) by Ryff and Keyes was applied (as cited in Stanford SPARQ Toolkits n.d.). The scale subdivides well-being into 6 aspects, namely *autonomy*, *environmental mastery*,

*personal growth*, *positive relations with others*, *purpose in life*, and *self-acceptance*. Each aspect is probed by a set of items. The questionnaire contains of 18 items, which illustrates the short version. The maximum score that can be reached is 126 and the minimum score is 18. A higher score indicates a higher psychological well-being. Psychometric properties for the short form of the PWBS are not available.

### Life Story Interview

For exploring the individual life stories, the Life Story Interview by McAdams (as cited in Foley Center 2009) was used. The interview should not take longer than two hours following the structure, which was as follows. Firstly, the participant was asked to describe his or her own life in form of life chapters. Secondly, key scenes in life were explored. As a third part, the future aspect was the point of focus. Fourthly, challenges in the participant's lives were investigated. Also, the personal values and beliefs gained attention during the fifth point, which is personal ideology. As a last aspect about the individual's life stories the participants were asked what their overall or general life theme might be. Finally, the participant could reflect on the interview itself and it is asked how they liked talking about their life story.

### Procedure

Before starting the data collection, the study was ethically approved by the ethics committee of the University of Twente (approval number: 190262). Afterwards, the data collection started and was planned for a duration of four weeks. However, scheduling the interviews with the participants, the first interview and the last interview were only 2 weeks apart. Moreover, a written informed consent was delivered and singed by all six participants.

A pilot test was conducted with a female participant from the same target group. This gave an insight into the conduction of the interview and how the procedure of conducting the interview can be improved. For instance, the interviewer improved on asking more questions to specific situations, which can be seen in the length and the amount of details, which increased during the next interviews. The pilot test was intended not be included within data collection. However, since the interview went well, and the data could be used, the decision was made to include it. The participant signed the informed consent and participated on the

basis of the same conditions as the other participants. Doing this, the participant agreed to be part of the study and it was adequate to include the data into the study.

While conducting the interviews the participants were visited at their homes, if this was possible for them. Since all participants have reached an age in which it might be difficult to travel to certain other locations this was the most comfortable method for them. Moreover, this had the advantage of a known environment for the participants, which increased their feeling of safety and comfort. Additionally, attention was paid to the general comfort of the participants. Especially, for older adults this was important since the whole research situation was new to them. This also included their physical well-being, so for instance a drink was proposed. Additionally, an introduction of the interview was important because knowing what to expect supported their feeling of safety. Moreover, the participants got to know that they always have the opportunity to ask questions before, during, and after the interview. This also contributed to their feeling of safety.

As a general point for the whole data gathering procedure it has to be mentioned that the data were gathered in the German language since this was the mother tongue of all participants. After mentioning general points regarding the procedure, the next sections will describe the quantitative and qualitative measurement procedure.

## Quantitative measurement – Psychological Well-Being Scale

Before starting the Life Story Interview the well-being measurement was administered. The decision was made to deliver this measurement first in order to avoid the possibility that once participants reviewed their Life Story it may influence their psychological well-being for a specific amount of time.

The psychological well-being scale was delivered on paper. The participants were asked whether they wanted to read the items themselves or whether they wanted it to be read out loud by the researcher. This was an option, since some of the participants needed help because they had problems with the reading as well as understanding the items in the way they were written down. So, the researcher sometimes helped during the execution, namely ticking the answers on the Likert scale. Additionally, some items were explained in easier words, so that the participants were able to understand them. Again, for the purpose of helping them with the execution, not to influence them while answering the items. The duration of the whole questionnaire took three to five minutes.

**Qualitative measurement – Life Story Interview**

After executing the PWBS, the Life Story Interview was conducted face-to-face. Before starting the interview, it was explained that the interview does not display a test for any kind of ability of the participants and that there is no right or wrong. It was made clear to the participants that the interview was recorded for later transcription purposes. The interviews of this study had a mean duration of 71 minutes, while the shortest interview took 38 minutes and the longest interview 101 minutes.

Afterwards, it was ensured that the participants have the contact data of the researcher, in case of questions after the interview. Additionally, it was proposed that after finishing the study a summary of the findings can be delivered to the participants. Since they are not able to speak or read English and the study is written in English it was proposed that the researcher can personally deliver an explanation of the outcomes of the study face-to-face.

**Analysis**

When the data collection was finished, first the Psychological Well-Being Scale needed to be analysed. First, items 1, 2, 3, 8, 9, 11, 12, 13, 17, and 18 needed to be reversed. The overall outcome was established by summing up all scores. Similarly, the subscale's scores were investigated by summing up each score of the corresponding items of a subscale.

Afterwards, the transcription process started. All interviews were transcribed in the actual spoken language German. Names of people or places were anonymised. The analysis followed on the basis of the German transcript, while citations were translated into English in order to include them in the written report afterwards.

For the analyses, codes were established to categorize the answers of the participants. For this procedure, the coding scheme was written in a table format and each analysis and the sequences of the codes were written down within the table. The coding scheme was developed by applying a mix of a top-down and bottom-up approach. The top-down approach is illustrated since special attention was paid of the three needs of the Self-Determination Theory, namely *competence, relatedness*, and *autonomy*. So, these codes were determined before conducting the interview. Additionally, sub-codes for each of the main codes were derived from the interviews. Thus, here the bottom-up approach is applied.

On this basis, the following coding system was developed (Table 1). As mentioned, the main codes were fixed. For establishing the sub codes, the first transcript was read in

depth and variations fitting to each main code were written down. For instance, issues around the topic *family* were categorized to the main code *relatedness*. This was done for every transcript. When all transcripts were read by the researcher the variations for each transcript were compared and some were taken together, while others remained as they were written down in the first place. In that way the first version of the coding scheme was established. Afterwards, one transcript was interchanged with another researcher who is familiar with the Life Story Interview. The researcher checked the coding scheme and analysed one interview on the basis of this. In this way, the coding scheme could be checked and reflected by another researcher. Moreover, feedback considering the scheme was exchanged and the coding scheme could be further improved.

Together with the input of the fellow researcher, it could be recognized that in each interview hindering factors for each main code were mentioned as well as facilitating factors. Thus, for each main code the two sub codes *hindering*, and *facilitating* were formulated. The sub codes that were established before are now variations, which fall below one of the two sub codes.

The interviews were then analysed with this coding scheme. First, it was explored whether an answer can be categorized to one of the three main codes. Second, the answer was analysed as *hindering* or *facilitating* the main code and then again categorized to one of the two sub codes.

The unit of analyses was per paragraph or in other words per each given answer. For instance, when a participant mentioned "going to school" in one answer, it has been coded once for the main code *competence* and then as *facilitating*. However, when "going to school" is mentioned in another answer again, so when the interviewer also talked in between, the statement was coded again.

Finally, the scores of the psychological well-being scale were compared with the codes of each participant and it was investigated whether possible connection arose, or pattern were visible. Generally, in this step the researcher wanted to get a deeper insight into the reflection of the needs of the SDT within psychological well-being.

Table 1

*Coding scheme*

| Main Codes | Competence | | Relatedness | | Autonomy | |
|---|---|---|---|---|---|---|
| Definition | The individual talks about different competences he/she achieved or not achieved during his/her lifetime. It can be recognized that competences are present or missing. | | The individual talks about relationships with fellow human beings. This is addressed in a positive manner (good relationships) or in a negative manner (troubles in relationships). | | The individual states, he/she can handle or cannot handle different situations. Or it can be recognized that the individual is autonomous in his/her actions or autonomy is missing in his/her actions. | |
| Sub Codes | Facilitating | Hindering | Facilitating | Hindering | Facilitating | Hindering |
| Definition | Achieving competences or being competent is/was facilitated by certain factors. | Achieving competences or being competent is/was hindered by certain factors. | Establishing or having relationships is/was facilitated by certain factors. | Establishing or having relationships is/was hindering by certain factors. | Being autonomous or achieving autonomy is/was facilitated by certain factors. | Being autonomous or achieving autonomy is/was hindered by certain factors. |

## Results

The interviews were analysed on the basis of the coding scheme in Table 1. The results of the interview are illustrated per participant. In the end, the outcomes of the PWBS are explored and compared for all participants together in one section in relation to the outcomes of the interview analysis.

Table 2

*Frequency of the Main and Sub Codes for each Participant*

|  | P 1 | P 2 | P 3 | P 4 | P 5 | P 6 | Total |
|---|---|---|---|---|---|---|---|
| Competence | 4 | 12 | 22 | 14 | 18 | 13 | 83 |
| Facilitating | 3 | 12 | 19 | 13 | 11 | 13 | 71 |
| Hindering | 1 | 0 | 3 | 1 | 7 | 0 | 12 |
| Relatedness | 24 | 23 | 32 | 45 | 37 | 42 | 203 |
| Facilitating | 24 | 22 | 32 | 45 | 31 | 41 | 195 |
| Hindering | 0 | 1 | 0 | 0 | 6 | 1 | 8 |
| Autonomy | 21 | 14 | 41 | 36 | 26 | 9 | 147 |
| Facilitating | 16 | 9 | 8 | 7 | 14 | 7 | 61 |
| Hindering | 5 | 5 | 33 | 29 | 12 | 2 | 86 |

The frequencies for each code can be seen within the Table 2. The scores for the three main codes *competence*, *relatedness*, and *autonomy* display the total amount in which the participant referred to that code. Below the total scores are split into the two sub codes *hindering* and *facilitating*. Different variations will be stated below. For each participant the three main codes will be discussed in individual sections.

**Participant 1**

**Competence**

Starting with *facilitating* factors for *competence*, the participant talked about school and her achievements in life. More specifically the participant mentioned: "In the evening I was happy when I helped others". This is also related to the main code *relatedness,* but has been coded for *facilitating competences*, since in this case it is the participants *competence* to help others in different aspects.

Next, for the sub code *hindering*, the education of the participant was coded. More specifically the participant explained that she could not go on with her education since she needed to take care of her sick father.

**Relatedness**

For the main code *relatedness* only the sub code *facilitating* was coded. Exploring this in depth, the family was addressed by the participant the most and mentioned as a life project. She stated that she tried to do the same things with her children as her parents did with her. Additionally, the relevance of the family can be recognized in her saying "the grandchildren were my greatest luck". Furthermore, the wedding has been coded as a *facilitating*

*relatedness*. The participant described her wedding as the highpoint in life. "The best memory was my wedding". Finally, pain due to the loss of loved ones could be recognized during the interview. This has been coded as *facilitating relatedness*, since the pain shows that there was a relationship to the deceased person. To give an example, she identified the loss of her dad as follows: "The worst was when my father died".

Another variation that was coded as *facilitating relatedness* is the good neighbourhood. She described that besides "sitting cosy together in the evenings" also helping each other belongs to a good neighbourhood. Additionally, it could be recognized that the participant attached great importance in her life on helping other people.

### Autonomy

Different variation for the sub code *facilitating* could be found. First, the fact that the participants did not need to take care of her parents-in-law anymore, *facilitated autonomy*. She referred to it as a changing point in her life. She said that she was "freer" when she did not have to take care of them anymore.

The critical reflection of the church and of politics were also coded as *facilitating autonomy*, which shows that she critically reflects the things happening as an *autonomous* person. She described the politics as a "kindergarten" and concerns that they "throw away the money". This has the result that she sometimes does not listen to the daily news anymore, since it does not interest her anymore.

Going on with the sub code *hindering*, the most *hindering* factor of *autonomy* for this participant, was the care of her parents-in-law. The participant mentioned that she "had to stay at home", since she had to take care of her farther, when she was finished with school. Finally, illness was analysed as another variation which hinders *autonomy*, since this is something the individual sometimes has no control of. She mentioned this again in relation to her farther and her deceased husband.

## Participant 2

### Competence

The second participant did only mention statements which were coded as *facilitating competence*. More specifically, the participant talked about all different *competences* she gained, which were mostly gender specific. So, in the case of this participant traditional women specific *competences*. The participant explained for instance that she learned cooking, baking, and different handcrafts at school. Overall, she stated that she is satisfied with her life.

**Relatedness**

Starting with the *facilitating* sub codes, the participant addressed the family often. She stated that family is her central theme in life by saying: "I always thought about educating my children well and that they can deal with their life".

The participant also referred to the relationship with her husband: "64 years of marriage, it was a nice time, I wouldn't want to miss it". Furthermore, another *facilitating* factor for *relatedness* is the good neighbourhood, for which the participant is grateful since her neighbours visit her every week. Moreover, the participant experienced pain due to the loss of loved ones where her pain was recognized through her crying.

Another variation that is very individual for this participant. During war time the participant worked at a school where they had prisoners from the war. She always stole some food from the kitchen and gave it to them. When Germany lost the war, everything went the other way around and the previous prisoners had the control and basted all people on the school except for the participant. This illustrates some kind of relation she developed to these people.

Lastly, a variation that hindered relatedness, was that the participant addressed the relationship to her sister. She said: "My sister and I were very different. Also, today we do not get along very well".

**Autonomy**

Addressing the sub code *facilitating* first, at one point in her life the participant did not have to take care of her mother anymore. This *facilitated autonomy* because she explained that she was "freer". Going on, the critical reflection with the church as well as politics could be recognized. Referring to the church she stated: "I don't agree with everything the catholic church did". Furthermore, she reflected politics in a way that she does not accept everything simply and that she has less trust in politics today.

Two more variations *facilitate* the *autonomy* of participant two. She remembered that when her children were older, they "did not need a babysitter anymore". Additionally, when explaining how she deals with certain situations, the participant said that she is more likely up to dealing with things on her own.

For the sub code *hindering*, first, the care of her mother did hinder her from being autonomous. She explained this as "not easy". Additionally, she addressed illness. She described the illness and death of her daughter the "worst" for her.

**Participant 3**

### Competence

As *facilitating* factors, the participant mentioned how she achieved different *competences*. She addressed the school time, the time in her husband's company, and gaining her driving licence. Overall, she summarised this on her own in the following way: "I learned my whole life". About executing her *competences*, the participant said instead of stopping to work or thinking about the certain situation, the participant kept going in fulfilling her tasks. She said: "You just have to operate".

Going on with the sub code *hindering*, the participant's education was hindered. She reported the following: "And then 8 days before I started my apprenticeship they suddenly cancelled". Another important factor for her referring to her education was that she was a "refugee child" and a specific company "did not take refugee children".

### Relatedness

Starting with the first variation of the sub code *facilitating*, the family was addressed. Generally, she talked a lot about her grandchildren and reported different stories and said: "It was a fun time with our grandchildren". Additionally, she stated it as an important value that the family stays together. Talking about other relations, the participant addressed her marriage and the good neighbourhood and her private engagement. She summarised that together with her husband: "Our life was only worrying about others".

Finally, the variation of pain due to the loss of loved ones was addressed. She described losing her husband by saying: "Every evening lying in the bed and crying". Also, losing her brother was reported as being "hard".

### Autonomy

Starting with the *facilitating* factors for *autonomy*, the critical reflection of the church was discussed. About the priests or authorities of the church she stated: "In the past they were role models, but that's not the case anymore". Overall, she pointed out that now she dares to open her mouth about these issues. Additionally, the participant criticised politics and social values: "in the end it's all about money" and "there is no social value anymore".

The *autonomy hindering* factors were coded more often. First, the care of her parents-in-law hindered her from being *autonomous*. Additionally, the participant talked about fears during her working time but also at home alone with her children, which led her back to her time as a refugee. After her husband passed away, she had to deal with matters of the company alone. She evaluated: "one has existential fear".

Other *hindering* variation were illness and her displacement as a child. She talked about her own illness matters, from her brother and her husband. She said: "I did not watch TV, did not read the newspaper. Only my husband and his illness were present". Finally, the displacement from childhood *hindered* her from being autonomous. Overall, the whole displacement was no *autonomous* decision for the participant because she was a child, but also her mother who would have been in the position to make such a decision was forced and just needed to follow what the soldiers said.

**Participant 4**

**Competence**

The participant was coded for the *facilitating* sub code. He described how he achieved specific *competences* in school, during his working time in the mine and when he was collected for the workers council. To specify his school time, which was during war, he explained that the pupils needed to collect herbs as medicine for the soldiers. About his time in the workers council he reported that he had to learn new skills, for instance: "I trained my signature that it didn't look so scrawny". The mentioned *competence* of taking care of his house and his big garden is a gender specific *competence*. The participant explained more specifically that he took over this task from his farther and likes to continue this responsibility. In contrast to the *facilitating* factors, the war time *hindered* the participant's education to a certain extent. For a few years there was no compulsory education in Germany, which caused him not to go to school.

**Relatedness**

Starting with the first variation for *facilitating relatedness*, the family was addressed by the participant. He mentioned peace and cohesion within family as the most important value in life. Besides his children, he talked about his own childhood: "It was positive, that our parents always managed to surprise us at Christmas", which was special during war time and he wanted to continue this with his own children. Within the context of family, he also talked about the marriage and relationship to his wife and said: "One was in seventh heaven".

The participant also addressed the good neighbourhood and more general good friends. Referring to his neighbourhood he said that they were offering "real neighbourly help" during his wife's illness. He also talked about helping others in a way that he was helping. For instance, he helped his sister-in-law, when her husband and the participant's brother passed away.

Also, the variation of pain due to the loss of loved ones was found in this interview often. First, the death of his brother was reflected as a "significant cut in life" by the participant. The death of his sister, farther and an old colleague from the mine were also reflected as painful. The participant talked about the funeral of his colleague: "When they played the song from the good companion… I had tears in my eyes".

**Autonomy**

Specifying the *facilitating* sub code, the participant critically reflected the church and politics. Referring to the church he said: "Due to the development of the catholic church I cannot keep the old thought of it anymore" and "one is really doubting", about the catholic church. Referring to politics, he talked about his disappointment of a specific party in Germany.

With regards to the sub code *hindering*, the first variation has to deal with the care of his mother. He reflected this time as a big chapter in his life, in which he and his wife could not leave the house when they wanted to. This care caused his wife's need to go into psychiatric care which he reflected by saying: "The whole story with grandmother teared her nerves so much". This also corresponds to the variation illness. The participant's *hindered autonomy* can be recognized by him asking himself: "How is this possible? How is this possible?".

Besides this illness story, he also talked about the illness of his farther as well as of his mother and his own illness story. After he had heart surgery, he had the following worries: "After this heart surgery I was a bit dickey… you didn't know if you can get on your old working level". Moreover, he thinks that more health issues will arise for him in the future. Finally, the variation *fear* was coded. In this context, he talked about his time in the mine rescue brigade, which was a very dangerous work to do. He explained: "I sometimes thought, boy it only needs one spark in order to fly around like powder".

**Participant 5**

**Competence**

Starting with the *facilitating* variations for the main code *competence*, the first one again deals with achieving *competences*. The school time, his apprenticeship as a painter, and his time at the "Bundeswehr" (the German army) were addressed. Furthermore, one *competence* was described as follows: "My effort was to take optimal care of this house, this estate".

Going on with the *hindering* sub code, the school education was evaluated as negative by saying: "Until the fourth grade with the teacher we learned something. What we learned after that was zero". Moreover, the participant perceived being *hindered* from achieving

*competences* in his job career. The participant reflected, that from his current point in life he regretted that he did not stay in the "Bundeswehr". However, at that point he could not realise that because of his farther who disagreed.

### Relatedness

First, the *facilitating* variations are explored in more depth. The first variation is the family, which the participant talked about a lot. He reflected the family as the most important topic in life and that he hopes that everyone stays healthy. Moreover, he described his marriage: "50 years of marriage and what it takes with it, highpoints and low points". Further, he stated his thoughts about this: "We were connected then. You know for what. You're not alone anymore. It was a promise of marriage. We stay together".

Other *facilitating* variations for relatedness were found. First, his view that he does not want to influence other people in a negative way. Second, the good relationship to his employer and the assistance of the employer when the participant was still young, and his mother passed away was positive. Finally, pain due to the loss of loved ones could be recognized. The participant talked about the death of his mother, and his wife's brother. It was hard for him not to cry and he reflected: "You can't grasp it".

One mentioned circumstance *hinders* the *relatedness* of the participant to his son and the family of his son, so namely grandchildren and his daughter-in-law. The participant evaluated the point where the contact stopped as a changing point in his life into a negative direction. He said for him "the world crashed".

### Autonomy

Starting with the *facilitating* variations, the first one is best described by citing the participant: "Getting ourselves down, is no option". This can be seen as the participant's life motto. Again, the church as well as politics were reflected critically. In detail, he criticised that during tough times, like the death of his mother, which happened when he was a child, no member of the church "was there" to help. Additionally, he criticised how the church deals with money. Going on with the critical reflection of politics and social issues, the participant stated that he does not understand certain decision of politicians. Finally, he stated the explanation that "It's all about the money".

For the sub code *hindering*, illness was addressed. First, the illness of the participant's mother was reported. Furthermore, he talked about his own heart attack, which happened not long ago and his own cancer story. Moreover, he talked about the breast cancer of his wife.

Especially this moved him during the interview. He stated that in a situation like this, the only question which came up is: "Why?".

**Participant 6**

### Competence

For the first main code only the sub code *facilitating* was found. First, the participant talked about how she achieved *competences*. This included the school time of the participant and her education in many different families where she achieved women specific *competences*. She stated: "We learned what we needed for life". Moreover, the participant stated once "I am just satisfied". This was analysed as showing satisfaction with achievements in life, which could only be achieved with certain *competences*.

### Relatedness

Starting with the *facilitating* variations, the first one is again the family. Generally, the participant talked about both children, about being a grandmother and great-grandmother and that she enjoys it: "I am happy about being a grandmother". In this context she also referred to the relationship and marriage to her husband. She reported their wedding as being her highpoint in life. The participant also talked about her nice neighbours and that she met a lot of people and became friends with them. She also helped a lot of people and stated: "I worked a lot for other people, a lot, helped out". She reflected: "I liked that. And when I was ready oh then I was proud"; "Whenever people were happy, I was happy".

The last variation of this sub code is the loss of loved ones. The participant experienced many different losses. She stated: "I am all alone, the only one who still lives from our family", which can be explained by her age (she turns 100). She got to know how it feels to lose loved ones and reflects it: "That hurts".

Also, the sub code *hindering* was coded. The participant mentioned having less contact to some members of her family. She stated: "Our life towards home, it was less, not so loveable anymore".

### Autonomy

The *facilitating* sub code was coded and could be recognized through different variations. The participant stated that she always "continues in life". It could be recognized that she follows this motto in her life. She described it with "going on enjoying". She especially referred to that when losing someone. "No long mourning, no tears and everything". For instance, she stated that she drove alone to holiday after her husband passed away. "I liked being there so

much, I drove alone then and stayed". This is analysed as being an *autonomous* person. Furthermore, she stated that a new chapter began when her children were old. Moreover, her efforts for staying healthy were coded here. In that way, she tries to stay as *autonomous* as she can in her age. Referring to her daily activity she stated: "That needs to be done every day. Otherwise one gets stiff".

Finally, two different variations of the sub code *hindering* were found. Namely, the care of the parents and illness. It could be recognized that both factors hindered the participant from being autonomous.

**Psychological Well-Being**

Table 3
*Psychological Well-Being scores and sub scale scores*

|  | P 1 | P 2 | P 3 | P 4 | P 5 | P 6 |
|---|---|---|---|---|---|---|
| Psychological Well-Being | 113 | 103 | 95 | 107 | 86 | 106 |
| Sub scale Environmental mastery | 20 | 19 | 16 | 16 | 14 | 21 |
| Sub scale Positive Relations with others | 21 | 20 | 17 | 19 | 14 | 21 |
| Sub Scale Autonomy | 18 | 13 | 14 | 21 | 20 | 7 |

While comparing the results of the PWBS with the coding frequency similar patterns could be found. Namely, all participants show a quite high well-being since all scores are above the median and within the upper field of scores that can be reached on the PWBS. Comparing this to the frequency of the codes in total it can be stated that the *facilitating* codes of all three main codes were coded more often.

Generally, the different variations of the codes were quite similar, for instance all participants addressed the family. Additionally, there were some unique variations for some participants. Still, overall the variations were alike. This can also be seen by taking a closer look at the total amount of the frequencies. For instance, all participants (except from participant 3) addressed *relatedness* the most with the fewest *hindering* factors.

Taking a closer look at participant 3 and 5 it can be recognized that they have a lower psychological well-being score. Moreover, the difference between the frequency of the

*facilitating* codes and the *hindering* codes is smaller than for the other participants. Hence, the *facilitating* factors do not overweight the *hindering* factors as strongly as for the other participants. So, the lower well-being score might reflect the higher frequency of *hindering* codes.

Taking a closer look at each sub scale it could be recognized that when the sub scale score was lower, the *hindering* sub code of the corresponding main code was also coded more often. The other way around, when the sub scale showed a higher score the *facilitating* sub codes were also coded more often.

In a very few instances the pattern was less strong but still visible. For instance, for participant 4 the scores of the *environmental mastery scale* are less strong but still in the upper field. Similarly, also the *facilitating* code or the corresponding main code *competence* was not coded as often as in other cases but still more often than the *hindering* codes. Thus, in cases like these the pattern that a higher frequency of *facilitating* codes show a higher score of the corresponding sub scale still can be recognized but with generally lower scores. Therefore, one could speak about a tendency towards a *facilitation* of the main code.

Only for one participant and here also only for one sub scale the pattern could not be recognized. This is the case for participant 6 within the sub scale of *autonomy*. Here the participant scored low on the PWBS. However, the *facilitating* codes are still coded more often. Overall, the code *autonomy* was not addressed often. Therefore, this outcome cannot be viewed as clashing the pattern as well as matching the pattern, since there is just too little information.

To summarize, overall patterns were found. A higher frequency of *facilitating* codes matches with higher scores of psychological well-being. This is also the case when taking a closer look at each sub scale. So, when a participant experiences more fostering factors for one of the three main codes the corresponding sub scale also showed a higher score.

## Discussion

After displaying the results, a conclusion can be drawn, and the research question can be answered. The current study dealt with answering the research question "To what extent is the fulfilment of the needs of the SDT reflected in psychological well-being of older adults?". To answer the research question, it was recognized that with more fostering factors for one of the three main codes the participants showed a high psychological well-being. Therefore, the

current research revealed that a higher need-satisfaction of the three components *competence*, *relatedness*, and *autonomy* also showed higher psychological well-being scores.

After concluding and answering the research question prior literature can be taken into account. The current research took the Life Story Interview by McAdams (as cited in Foley Center 2009) as the basis for exploring the components of the SDT. It was decided to use information about the whole life story in order to investigate whether the fulfilment of these three components increases the current psychological well-being.

However, the current study did not determine the psychological well-being on basis of the interviews. Rather, the interview gave information about the three components of the Self-Determination Theory which in turn can give an indication for how the psychological well-being might be. Thus, the current study included an extra facet to give information about psychological well-being, namely investigating the components of the SDT and on the basis of this exploring whether there is a connection to psychological well-being.

This can be compared to the study of Shmotkin and Shrira (2012). They also state that reports about an individual's own past can give information about the present well-being. After conducting the current study, this can be confirmed. More specifically, the current study adds the inclusion of the SDT. Now it can be stated that a fulfilment of the three components of the SDT has a positive influence on psychological well-being. Additionally, the current study explored the whole life story with the Life Story Interview as a foundation, while the study of Shmotkin and Shrira (2012) took past experiences as an indicator for well-being.

The findings of the current study, namely that a higher fostering of the three main codes shows a higher psychological well-being, is in line with other research. Houle and Philippe (2017) stated that a higher need-satisfaction of the three needs of the SDT increases well-being. However, exploring these components on basis of the Life Story Interview was a new approach of the current research. Thus, executing a new approach in the current study extends the circumstance in a way that when taking the whole life story into account, the findings of Houle and Philippe still can be confirmed.

The approach of taking the Life Story Interview as a foundation was suitable. This apporach is based on the findings within previous studies. First, as stated above Shmotkin and Shrira (2012) found that past experience influence well-being. Second, the current study was influenced by the study of Bauer and McAdams (2000) in this context. The researchers state that there is a relation between aspects often told in life stories and the SDT. At the beginning of this report the corresponding aspects between life stories and the components of the SDT were listed. After conducting the interviews, it can be recognized, that the different variations

of the sub codes can be compared to the different aspects of the life stories Bauer and McAdams also mentioned. Thus, the current study confirms this structure in a way that now the components of the SDT illustrate the main codes. The variations of each sub code illustrate the facets of life story interviews.

*Relationship/wedding* or *good neighbourhood/good friends* were found as variations mentioned during the interview. These variations were categorized as falling within the sub code *facilitating* and below the main code *relatedness*. This corresponds to the findings of the Bauer and McAdams analyses (2000). First, they state that *communion* is the corresponding facet to the component *relatedness* of the SDT. More specifically, *communion* is subdivided into four facets. Two of these facets, namely *friendship* and *love*, correspond to the two mentioned variations of the interviews. Additionally, both variations were found quite often and therefore it can be agreed that these facets are often mentioned within the Life Story Interview.

Other variations that could be recognized during the interviews are *satisfaction with achievements in life* and *achieving competences*. These two variations were coded as falling below the main code *competence*. Comparing this to the analyses of Bauer and McAdams (2000) they state two facets of *competence*, which correspond to these two variations of the current study. The variations *satisfactions with achievements in life* can be linked to the facet of *achieving desired goals*, since it can be assumed that an individual might only be satisfied with his or her achievements when these correspond to the desired goals. Furthermore, the variation *achieving competences* can be compared to the facet of *having an impact on self*. When working on *achieving competences* this has an impact on oneself, namely on one's *competences*. Moreover, the facet of having an impact on others can be compared to the variation of *helping others*, since with this help the individuals have an impact on other individuals. To sum up, the second comparison of different facets with the component *competence* can be accepted on the basis of the current study and interviews.

Going on with the comparison between the current study and the findings of Bauer and McAdams (2000), the current study found the variation *no care of parents-in-law or parents anymore*. This variation was coded as a factor for the main code *autonomy*. Different citations were stated, which show that fostering older adults *hindered* the participants from being independent. Corresponding, *no care of parent-in-law anymore* fosters independence which matches to the facet *independence* of Bauer and McAdams. Similar to current study, also Bauer and McAdams categorised this facet to the component *autonomy*.

Finally, the variations of the *critical reflection of the church and politics* were mentioned variations. These can be compared to the facet of *self-mastery* by Bauer and McAdams (2000). *Self-mastery* can be recognized here since, to take the same word, the individual masters for him- or herself to reflect these matters. Instead of for instance simply listening to authorities and following certain rules related to these two, the individual reflects these matters with his or her own opinion and develops an own standpoint. In that way also *self-mastery* can be found within the variation of the coding scheme. Hence, the current study also confirms this comparison.

**Strengths and Limitations**

The following strengths and limitations can be detected when reflecting on the current study. The components of the SDT were explored within the Life Story Interview. This method can be seen as an advantage as well as a limitation. Starting with the advantage, with the Life Story Interview as a foundation, the information is extracted from real experiences without direct questions referring to a component of the SDT. Additionally, taking the Life Story Interview as a basis increases the chances of really taking the whole life into account for the analysis.

However, during the Life Story Interview participants decide themselves which components they address the most. For instance, the main code *relatedness* was addressed the most by all participants. However, this must not elicit the conclusion that this component is simply more fostered. There are different implications which might interfere here. For instance, when talking about one's life story, variations illustrating the main code *relatedness* might just be more present for the individual. Thus, the limitation of taking the Life Story Interview as a basis here is that no specific questions concerning the three components are asked and therefore the participant decides which components are addressed more frequently. Taking both limitations and advantages regarding this into account it is important that the researcher is aware of this circumstance and reflects on it. For the current study, this circumstance was reflected on, and the Life Story Interview was evaluated as suitable within this context.

Additionally, the general amount of information the participant shares, is up to him- or herself during the Life Story Interview. Again, this is a strength as well as a limitation. On the one hand, participants might talk more when asked open questions. On the other hand, it became obvious that during the interview some participants withheld information on purpose.

In contrast, when asking closed questions, the participant might be less up to withhold information. More specifically experiences arising negative feelings were withheld sometimes. This could be recognized because the participants sometimes started introducing a thought into this direction but stopped amplifying the thought. This could bias the outcome in such a way that *hindering* factors were sometimes less because the participants withheld this kind of information.

A last point concerning the Life Story Interview could again be a strength or a limitation at the same time. The researcher of the current study knew all participants personally, while some of them closer and some of them less close. However, in cases of talking about one's life story it can be assumed that some people feel more comfortable when talking to a familiar person. Similarly, some participants might feel uncomfortable or at least do not want a familiar person to know about certain circumstances about their life. However, reflecting on that, after the interview all participants stated that they liked talking about their life in this context and that they felt comfortable. Thus, it can be concluded that in this case it was more advantageous that the interviewer knew the participants. Still, this aspect has to be thought of before consulting participants.

Finally, the Psychological Well-Being scale can be discussed within this context. A strong point obviously of using this measurement of well-being is that the three components of the SDT were also present within the scale. Thus, as can be seen within the results section these components could be compared and revealed different insights for answering the research question.

However, psychometric properties for the scale were not available. It would have been advantageous before to reflect on validity and reliability for instance. This could also give an insight into the circumstance that it seemed like some items were misunderstood by the older adults. For instance, item ten "I sometimes feel as if I've done all there is to do in life" belongs to the sub scale purpose in life. Thus, when answering this with "strongly agree" the item only scores with one, which indicates a low score in this case. However, some participants answered this item with "strongly agree" but with a positive attitude, which could be recognized in their way of stating their answer and the mimicry, which was happy. Thus, they interpreted this item differently. All of them reached a high age and when answering the item in that way seemed more satisfied that they have done everything that is to do in life. So, a different interpretation of the items might bias the outcome in this case.

**Practical Implications**

The outcome of the study shows that the components of the SDT increase psychological well-being also when taking the whole life story into account. Therefore, attention can be paid to actually achieving these components. This has the implication that each individual personally can focus on need-satisfaction of the three needs of the SDT. However, also some external factors could be found within the interview *facilitating* or *hindering* the three components. Therefore, thinking in a broader context, fellow human beings as well as big institutions as the church or politics can take this into account to make a change and *facilitate* the fulfilment of the three components more.

Also, professionals designing interventions for increasing psychological well-being can use these findings in their designs. This corresponds to the study of Kloos, Trompetter, Bohlmeijer, and Westerhof (2018), which was addressed before. They also found that fulfilling the three components in nursing care increased the well-being of the residents. The current study showed that also for older adults the fulfilment also increased psychological well-being. Therefore, paying attention to need satisfaction of *relatedness*, *autonomy*, and *competence* is also important for older adult's care centres.

Besides research purposes, conducting the interview can have a positive personal value and experience. Here, one practical implication could be important for people dealing with older adults. For implementing this, it is surely positive when an experienced expert of the Life Story Interview conducts this with the people. However, educating other people in conducting the interview is also a possibility. Another way of doing this would be that a group of volunteers visits older adults care centres and conducts the interviews. As can be seen, there are multiple ways to realize this practical implication. Although this is a practical implication on the more personal level, conducting the interview can still give important insights into the fulfilment of the three needs and afterwards it can be reflected how this can be *facilitated* more in the future.

**Ideas for Further Research**

Taking a closer look at the target group and their gender it can be detected that there are differences between male and female participants for the sub scale *autonomy* of the Psychological Well-Being-Scale. The two male participants receive both higher scores, nearly the maximum, on the *autonomy* sub scale. However, it cannot be stated whether this is a

coincidence, since a conclusion cannot be drawn from this sample. It can be assumed that there is a reason for these scores when taking the target group into account. This consists of older adults, which grew up with a different feeling of role allocation, which might have an influence on the higher frequency of the code *autonomy* of male participants. Also, the main code *competence* gives an indication here. Within this main code it could be seen that the variation of *gender specific competences* shows a traditional role allocation. This partly included that women were less *autonomous*. One could state that in some cases they were dependent on their husband. Therefore, it might be actually the case that women in this age score lower for *autonomy*.

It might be interesting to include this facet. This could be done with other measurements addressing more specifically the three components of the Self-Determination Theory. However, again the Life Story Interview could be taken as a basis to explore the differences in *autonomy* between men and female participants in depth. Doing this, a broader sample needs to be consulted in order to prove a difference between women and men in this circumstance.

Moreover, it would be interesting not only exploring the different components for differences in gender. Also, examining differences between the three components with their different frequencies would be interesting. For instance, it is obvious that the main code *relatedness* had a higher frequency in the current study. Above it was stated that a higher frequency does not directly imply a higher relevance. This needs to be proven. It might also be the case that the component *relatedness* had a higher relevance for the participants. In turn, fulfilling this component might have a higher positive effect on well-being than the other two components.

It could also be possible to execute the research with participants who actually live in older adult's care centres. One mentioned practical implication states that the importance of need-satisfaction in older adult's care becomes obvious due to the findings of this study. However, the current sample did not include residents of older adult's care centres. Therefore, repeating the study with a sample that consists of residents of older adult's care centres might confirm the practical implication even more.

Additionally, another well-being measurement could be taken into account here because of the missing psychometric properties and indication of misunderstood items. Still, the different interpretations of items might be the case for every well-being measurement since the reason for misinterpreting the items might be the age of the participants. Thus, it can be searched for another well-being measurement, where the interpretation might not be

influenced as much by the age as it was the case for the mentioned item. Doing this it can be explored whether this biased the outcome to a large extent.

**Conclusion**

To summarise, the current study gave important insight into how the fulfilment of the needs of the Self-Determination Theory are reflected within psychological well-being. It was found that when the components *competence*, *relatedness*, and *autonomy* were fostered during the individual's life story the psychological well-being was also high. This induces the importance of the need-satisfaction of these three components during a person's lifetime. More specifically, since fostering the *competence*, *relatedness*, and *autonomy* leads to a high psychological well-being, this could also be seen as a foundation for different intervention with the aim to increase psychological well-being, especially when this might be low. Hence, certain intervention designed for older adults with a low well-being can profit from the findings of this study.

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