

A peer-reviewed version of this preprint was published in PeerJ on 30 July 2015.

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Drageset J, Dysvik E, Espehaug B, Natvig GK, Furnes B. 2015. Suffering and mental health among older people living in nursing homes—a mixed-methods study. PeerJ 3:e1120 <https://doi.org/10.7717/peerj.1120>

Suffering and mental health among older people living in nursing homes - a mixed-methods study

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Background. Knowledge about mixed-methods perspectives that examine anxiety, depression, social support, mental health and the phenomenon of suffering among cognitively intact NH residents is scarce. We aimed to explore suffering and mental health among cognitively intact NH residents. **Methods.** This study used a mixed-methods design to explore different aspects of the same phenomena of interest to gain a more comprehensive understanding. The qualitative core component comprised a qualitative interview from 18 nursing home residents (≥ 65 years) about experiences related to pain, grief and loss. The supplementary component comprised interview from the same respondents using the SF-36 Health Survey subscales, the Hospital Anxiety and Depression Scale and the Social Provisions Scale. **Results.** The individual descriptions reveal suffering caused by painful experiences during life. The quantitative results indicated that symptoms of anxiety and depression were related to mental health and symptoms of anxiety were related to bodily pain and emotional role limitations. Attachment and social integration were associated with vitality and social functioning. **Discussion.** To improve the situation, more attention should be paid to the residents' suffering related to anxiety, depression and psychosocial relations.

2 **Mental health and suffering among older people living in nursing homes – a mixed-methods**
3 **study**

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26

27 **Introduction**

28 Nursing home (NH) residents without cognitive impairment comprise a minority of NH residents and
29 often have somatic and/or other mental health conditions (Nygaard, Naik & Ruths, 2000; Linton &
30 Lach, 2007; Selbaek et al., 2007). NH residents may also experience stressful events such as relational
31 losses, loss of home and loss of spouse, relatives and friends. Such conditions may cause them to
32 experience suffering (Morse, 2001; Cassel, 2004; Ferrell & Coyle 2008) and affect both mental and
33 physical health (Travis et al., 2004; Garcia et al., 2005). Morse (2011) describes suffering as basic
34 emotional experience that follows illnesses that threaten one's physical or psychosocial integration.
35 Thus, suffering refers to human existence as a whole, whereas experiencing suffering can mean being
36 unable to keep oneself together as a whole entity. Alleviating suffering implies lessening people's
37 sense of vulnerability (Rehnsfelt & Eriksson, 2004). Studies from Canada (Daneault et al., 2004) and
38 Finland (Kuuppelomaki & Lauri, 1998) found that people report suffering in three dimensions;
39 physical, mental and social well-being. Physical suffering includes pain, mental suffering is mostly
40 expressed as depression and social suffering is often caused by disease that results in isolation and
41 withdrawal from social contact (Kuuppelomaki & Lauri, 1998).

42 Depression is common among older people living in NHs (Smalbrugge et al., 2005a;
43 Smalbrugge et al., 2006a; Drageset, Eide & Ranhoff, 2011, 2013); the prevalence is 34–41%.
44 Depression is often experienced together with anxiety, where anxiety tends to follow traumatic events
45 and loss situations (Bland, 2012), such as loss of significant others but also functional abilities and loss
46 caused by disease.

47 Only a few studies of the associations between the experience of anxiety and depression and
48 quality of life among older cognitively intact people in NHs have been published. In Spain, Rodriguez-
49 Blazquez et al. (2012) found that depression, health status and the interaction of age and

50 institutionalization were related to well-being. In a study in the Netherlands among NH residents,
51 Smalbrugge et al. (2006b) studied the impact of depression and anxiety on well-being and found that
52 depression and/or anxiety were associated with significantly worse psychosocial well-being.

53 Another source of suffering may be social isolation, resulting from difficulty in maintaining
54 social contact because of disabilities and loss of spouse and friends (Drageset, Kirkevold & Espehaug,
55 2010). For some NH residents, it means that they no longer have anyone close in their social network.
56 The experience of suffering may be a reaction to the lack of someone close (Morse, 2011).

57 Social support may alleviate the experience of suffering and, in turn, may affect mental and
58 physical health. Social support involves qualitative aspects of human relationships, such as the content
59 and the availability of relationships with significant others (Sarason, Sarason & Pierce, 1990). Social
60 support is conceptualized in the literature from three dimensions (affect, affirmation and aid (Kahn,
61 1979)) to five dimensions (emotional support, esteem support, material support, instrumental support
62 and active support (Cobb, 1979; Cohen, Lynn & Gottlieb, 2000). Most authors include dimensions
63 related to emotional support, confirmation support and practical support. Few relevant studies of social
64 support and quality of life among mental intact NH residents have been conducted. In a quantitative
65 study, Tseng & Wang (2001) found that social support from nursing aides and the frequency of
66 interaction with family significantly predict the quality of life of NH residents. In a qualitative NH
67 study in Norway, Bergland & Kirkevold (2005) found that residents reported positive peer
68 relationships, and positive relationships with family were essential for thriving. A qualitative study in
69 Canada (Welsh, Moore & Getzlaf, 2012) explored meaning in life for NH residents. Connectedness
70 and engaging in “normal” activities emerged as enhancing meaning in life for the residents. A
71 systematic qualitative review of NH life in relation to residents’ quality of life reported connectedness
72 with others as being essential for residents’ quality of life (Bradshaw, Playford & Riazi, 2012).

73 We have recently found that NH residents reported symptoms of anxiety and depression
74 (Drageset, Eide & Ranhoff, 2013), and some dimensions of social support (attachment, nurturance and
75 reassurance of worth) have been shown to be important for health-related quality of life (Drageset et
76 al., 2009a). Based on our recent findings and the present literature review, one may question that
77 cognitively intact NH residents who report symptoms of anxiety and depression and a lack of social
78 contact are particularly prone to reduced health-related quality of life (HRQOL) and the increased
79 experience of suffering.

80 Some studies have investigated the association between anxiety, depression, social support and
81 HRQOL among cognitively intact NH residents, but we found no relevant studies about mixed-
82 methods perspectives that examine this association and the phenomenon of suffering. Better care and
83 treatment for older people with no cognitive impairment living in NHs requires focusing on well-being
84 at a holistic level. This means including emotional well-being and the availability of meaningful social
85 relationships. Meeting this challenge requires extending the perspectives beyond what one specific
86 research approach can give.

87 **Aim**

88 The aim of this study was to investigate suffering and mental health among cognitively intact NH
89 residents more broadly by using a mixed-methods design. The specific research questions were as
90 follows.

- 91
- 92 • How do older people living in NHs experience their life situation?
- 93 • What is the association between sociodemographic and illness variables and anxiety, depression
94 and health-related quality of life for NH residents?
- 95 • How can the quantitative findings extend findings from qualitative analysis for NH residents?

96

97 **Methods**

98 *Design and population*

99 Since we wanted to explore different aspects of the same phenomena, we used a qualitative mixed-
100 methods design with concurrently components: qualitative and quantitative (Morse & Niehaus, 2009).

101 The theoretical drive or the inductive direction of a research project guides the qualitative
102 methodological core (Morse et al., 2006) and allows researchers to explore experiences qualitatively
103 and to build a theoretical model of suffering during anxiety, depression and social support
104 subdimensions and health-related quality of life. These methods differ from other approaches because
105 the qualitative core component is guiding the study, which may stand alone, and the supplementary
106 quantitative component is used to expand certain details of the findings to indicate the validity of the
107 core findings.

108
109 The qualitative core component in the study comprised a qualitative interview about life experiences
110 related to pain, grief and loss and psychosocial topics from 18 respondents. The supplementary
111 component in the study comprised the same 18 respondents, in which we interviewed the participants
112 face to face using the SF-36 Health Survey subdimensions bodily pain, vitality, social functioning,
113 role–emotional and mental health; the Hospital Anxiety and Depression Scale (HADS); and the Social
114 Provisions Scale (SPS). The supplementary component (findings from the quantitative analysis)
115 enabled us to explore significant relationships and may inform the qualitative findings.

116

117 This study used a simultaneous design (figure). Once we analyzed the qualitative core component and
118 completed the supplementary components, we first described the findings on the core component. We

119 then integrated the final descriptions from the quantitative components, and these constitute a results
120 narrative on which the discussion is based (Figure).

121

122 Please insert figure here

123

124 This study is part of a study conducted in 2004–2005 (Drageset et al., 2009b), with follow-up until
125 2011. At the end of follow-up, 19 NH residents were still alive, and 18 were included based on the
126 inclusion criteria: aged 65 years and older, cognitively intact, capable of carrying out a conversation
127 and residing in the NH for at least 6 months. Cognitively intact was defined as having a Clinical
128 Dementia Rating (CDR) ≤ 0.5 (Hughes et al., 1982). CDR was developed as a staging instrument for
129 dementia and is scored as no (0), questionable (0.5), mild (1), moderate (2) and severe (3) dementia,
130 and the overall level of dementia is derived by using a standard algorithm (Morris, 1993). Trained
131 nurses who had observed the residents for at least 4 weeks assessed CDR and were instructed to base
132 their CDR scoring on mental functioning and not to include physical frailty. The CDR has shown high
133 interrater reliability for physicians and other health professionals (McCulla et al., 1989). Exclusion
134 criteria were: lived shorter than 6 months in an NH, CDR score >0.5 and those who had their general
135 health status assessed by a doctor or nurse, who indicated that the residents could not converse with the
136 researcher. A primary care nurse invited them to participate.

137

138 *Ethical approval*

139 The project involved a sample collected during 2009–2010. We obtained informed consent. The
140 Western Norway Regional Committee for Medical and Health Research Ethics and the Norwegian
141 Social Science Data Services approved the study (REK.Vest nr. 62.03/2009/1550).

142

143 Data collection

144 *Qualitative data*

145 We collected data through individual interviews. We developed a semistructured interview guide based
146 on our previous research findings. We asked informants about mental health and physical health
147 (including their experience of depression, anxiety, loss and pain). We performed interviews in the
148 residents' room, and they lasted 45–90 minutes. The interviewer (first author) conducted conversations
149 in which participants were encouraged to describe their experience regarding the questions in the
150 interview guide. The respondents' answers to the questions also led to spontaneous follow-up questions
151 from the interviewer. The 18 interviews were taped and transcribed verbatim. In all, this resulted in
152 detailed descriptions.

154 *Quantitative data*

155 We obtained the quantitative data through face-to-face data collection. The 18 interviews took place in
156 the respondent's room or at another appropriate location in the NH. The principal investigator (JD)
157 performed the quantitative interviews: read the questions to the participants, circled the indicated
158 answer and recorded the demographic information. This was necessary, since many of the residents
159 have problems holding a pen and have reduced vision.

161 *Assessment instruments*

162 We collected sociodemographic variables such as age, sex, marital status, education level and
163 comorbidity from patient records. We scored comorbidity using the Functional Comorbidity Index, a
164 clinically based measure (Groll et al., 2005). This index includes 18 diagnoses scored “yes = 1” and
165 “no = 0”. A maximum score of 18 indicates the highest number of comorbid illnesses.

166 We measured health-related quality of life using the SF-36 (Ware & Sherbourne, 1992; Ware,
167 2005). The SF-36 comprises 36 questions along eight dimensions: physical functioning (10 items),
168 general health (five items), mental health (five items), bodily pain (two items), role limitation related to
169 physical problems (four items), role limitation related to emotional problems (three items), social
170 functioning (two items) and vitality (four items). An additional item, reported health transition, notes
171 changes in general health during the past year. The response scores for each dimension are added, and
172 the total is converted to a score on a scale from 0 (poor health) to 100 (optimal health) (Ware, 2005). In
173 this study, we used the subdimensions bodily pain, vitality, social functioning, role-emotional and
174 mental health. The SF-36 has been used in numerous studies in geriatrics and appears to be reliable:
175 Cronbach's alpha: 0.68–0.94 (Lyons et al., 1994; Berlowitz et al., 1995; Pit et al., 1996). It has also
176 demonstrated good construct validity (Lyons et al., 1994) and convergent validity (Andresen et al.,
177 1999).

178 We used HADS (Zigmond & Snaith, 1983) to assess depression and anxiety symptoms. HADS
179 is well validated (Bjelland et al., 2002). HADS has seven items for anxiety (HADS-A) and seven for
180 depression (HADS-D). Each item is scored on a four-point scale from 0 (not present) to 3
181 (considerable). The maximum score is 21 on each subscale, and a higher score indicates a higher
182 symptom load (Zigmond & Snaith, 1983). A score of 8–10 indicates possible cases of anxiety or
183 depression, and a score ≥ 11 indicates cases of anxiety or depression that require further investigation
184 and possibly treatment (Zigmond & Snaith, 1983). HADS has been translated into Norwegian and has
185 been found to be reliable and valid for older people (Stordal et al., 2001, 2003) and reliable and valid
186 among NH residents (Haugan & Drageset, 2014).

187 We assessed social support using the revised SPS (Cutrona & Russell, 1987). The scale
188 contains 24 items, four for each of the six social provisions worked out in detail by Weiss (1974).
189 Russell et al. (1984) simplified the response format to a four-point rating scale: “strongly disagree”,

190 “disagree”, “agree” and “strongly agree”. According to Cutrona and Russell (1987), Andersson &
191 Stevens (1993) and Mancini & Blieszner (1992), four of the original six subscales were selected:
192 “attachment” (emotional closeness from which one derives a sense of security); “social integration”
193 (relationships in which the person shares concerns and common interests); “opportunities for
194 nurturance” (being responsible for the care of others); and “reassurance of worth” (a sense of
195 competence and esteem). High scores indicate high social provision. The SPS, with four
196 subdimensions “attachment”, “social integration”, “nurturance” and “reassurance of worth”, has been
197 used in studies of older people living in the community (Andersson & Stevens, 1993; Bondevik &
198 Skogstad, 1996; Saevareid et al., 2010) and among NH residents (Bondevik & Skogstad, 1998;
199 Drageset, 2002; Drageset et al., 2009b).

200

201 **Data analysis**

202 *Qualitative data*

203 We analyzed the interview data by using elements of qualitative content analysis (Graneheim &
204 Lundman, 2004; Kvale & Brinkmann, 2009). The analytical process occurred in six stages (see Table 3
205 for details): 1) transcribing the interview; 2) open independent reading of all material to gain an overall
206 impression of the text; 3) identifying meaning units; 4) categorization; 5) abstracting two subthemes
207 and a theme (Table 3); and 6) reflection and discussion.

208

209 *Quantitative data*

210 Table 1 presents descriptive statistics for the demographic variables and the comorbidity variables. We
211 applied nonparametric test statistics to test for distributional differences in SF-36 subscales among
212 groups defined by sex (Mann-Whitney *U*-test) and marital status (Kruskal-Wallis test). We calculated
213 Spearman correlation coefficients to study associations between comorbidity, age, anxiety, depression,

214 social support dimensions and SF-36 subdimensions: bodily pain, social functioning, role–emotional,
215 vitality and mental health (Table 2).

216

217 [Please insert Tables 1–3 about here]

218

219 **Results**

220 Respondents' characteristics

221 Of the 19 NH residents, 18 (95%) met the inclusion criteria; 1 (5%) declined to participate.

222 Of the 18 respondents, 11 (62%) were women. The mean age was 84.8 years (SD 7.6). The mean
223 number of comorbid illnesses was 1.9 (median 2.0, SD 1.3, range 0–5).

224

225 Qualitative data

226 During the interviews, the informants often strived to express their feelings verbally. Nevertheless, the
227 qualitative data reveal many previous and current life experiences related to psychosocial aspects and
228 suffering. Among these, the informants described several loss and traumatic experiences related to
229 death (of parents, siblings, relatives and friends), war, starving and isolation. During the conversation,
230 the individuals often return to stories from childhood and upbringing. According to the qualitative
231 analysis, one main theme was suffering as a complex psychosocial entity and two subthemes “pain
232 from experience in early life” and “painful experience in recent life” (Table 4).

233 [Please insert Table 4 about here]

234

235 Such early-life experiences are often related to loss by death, instability and lack of hope in
236 their upbringing. Several descriptions reflect this, and representative quotations are presented here to
237 give the participants a voice:

238 • “I have a lifelong grief caused by traumatic experiences from the war.” (P)

239 • “I feel grief caused by difficult experiences during my childhood.” (Q)

240 • “Unstable upbringing and hopelessness have been painful.” (F)

241 The interviewees strongly emphasized earlier painful life experiences. Loss and grief seem to be
242 especially attached to these.

243 Current life experiences are also related to loss by death, and lack of social relations, lack of
244 courage to live and lack of hope are prominent. Many descriptions revealed resignation and
245 hopelessness:

246 • “I just sit here.” (O)

247 • “I am in despair and lonely, but that’s life for us old people, and I cannot do anything
248 about it.” (F)

249 • “I feel like a prisoner and several times I wish that I did not exist. I have had enough!”
250 “I live in a cemetery.” (Q)

251 • “I am crying all day long.” (A)

252 • “I lie in bed, feel totally isolated, and cannot take care of myself.” (F)

253 • “Noise from other people all the time is quite stressful.” (D)

254 The qualitative data reveal clear patterns and similarities in the descriptions. In their present life
255 situation, loneliness, despair and depressive thoughts are prominent, and they express several attempts
256 to endure their situation.

257 • “If you are unable to come into contact with others, you will feel the loneliness strongly
258 and you also feel invisible.” (P)

259 The current life experiences also contained several contradictory descriptions:

260 • “[Life] is very sad, it is terrible, but I have nothing to complain about.” (J)

261 • "..., I just have to accept." (H)

262 The individual stories consistently described existence as a state the informants have to endure and
263 adapt to. In this process, several expressed that good relationships (staff and relatives) and mobility are
264 very important. The relationships with health care providers are especially important.

265 • "I do not always trust the health care workers, but they are okay." (F)

266 Or more explicitly stated: "We need health care workers who care for us."

267

268 Quantitative data

269 In general, residents scored highest on role–emotional and social functioning and lowest on vitality
270 (Table 2). Women reported lower, but not statistically significantly lower, scores than men on all
271 subdimensions except for vitality and bodily pain.

272 The health-related quality of life subdimensions bodily pain ($P = 0.02$), role–emotional ($P = 0.02$) and
273 mental health ($P < 0.001$) were negatively associated with anxiety. Increasing depression scores were
274 negatively associated with mental health ($P = 0.007$). Attachment was positively associated with
275 vitality ($P = 0.02$) and social integration with social functioning ($P = 0.02$). Nurturance was negatively
276 associated with role–emotional ($P = 0.04$).

277 Cronbach's alpha for the SF-36 subscales ranged from 0.60 to 0.85, with role–emotional
278 showing the highest values and vitality the lowest.

279

280 **Results narrative**

281 The results narrative summarizes the core component findings, with the supplementary component
282 adding certain information to specific areas (Morse & Niehaus, 2009). Both data sets showed that
283 suffering is prominent and that anxiety and depression predict worse mental health. Findings from both

284 the qualitative findings and quantitative data highlight social relationships as important for mental
285 health and, conversely, lack of social relationships as a source of suffering. The qualitative data
286 provided many descriptions of the life situation in an NH in which many difficult experiences
287 throughout a long life are prominent. As such, the qualitative data provided detailed information about
288 several psychosocial aspects and experienced suffering. Additional, the supplementary component,
289 quantitative data, showed that emotional closeness and relationships with people who share concerns
290 and interests is important.

291 The combined findings call for several improvements in care among the residents, which more
292 accurately reflects their concerns aimed at alleviating suffering.

293

294 **Discussion**

295 This study among cognitively intact NH residents showed that the individual stories reveal that
296 psychosocial aspects and the phenomenon of suffering are related to painful experiences during life.

297 The quantitative data showed that symptoms of both anxiety and depression were related to mental
298 health. The association between anxiety and depression and mental health may suggest that more
299 symptoms of both anxiety and depression contribute to worse mental health. Other studies among NH
300 residents (Smalbrugge et al., 2005b, 2006b; Rodriguez-Blazquez et al., 2012) reported associations
301 between the presence of depression and/or anxiety symptoms and worse well-being. One explanation
302 for our results could be that most of our respondents were widows or widowers, have multiple
303 diagnoses and were dependent in the activities of daily living. All these circumstances may be
304 experienced as losses, contribute to symptoms of depression (Bland, 2012) and influence mental health
305 (Ferrell & Coyle, 2008) and the experience of suffering (Kuuppelomaki & Lauri, 1998; Ferrell &
306 Coyle, 2008; Morse, 2011). The informants also clearly expressed the experience of suffering by telling

307 stories containing both earlier and current life events. Morse (2011) emphasizes the significance of
308 assisting the residents in moving from endurance to emotional release when coping with suffering.
309 Interpersonal encounters seem to play an important role here to help the person who is suffering in this
310 process (Yalom, 2005), and nurses must maintain a culture that includes such basic elements of
311 nursing.

312 Symptoms of anxiety were related to the bodily pain subdimension of the health-related quality
313 of life. This dimension of the SF-36 measures the intensity of bodily pain and the extent to which
314 bodily pain interferes with normal activities (Ware, 2005). Among older NH residents, Smalbrugge et
315 al. (2006b) found associations between anxiety and well-being. But in contrast to our study, the
316 diagnosis of anxiety was reported and the study did not explicit focus on pain. Pain is a source of
317 suffering (Cassel, 2004; Ferrell & Coyle, 2008) and a primary source of physical suffering
318 (Kuuppelomaki & Lauri, 1998).

319 Our study indicated that higher levels of attachment and social integration are associated with
320 higher levels of vitality and social functioning, or conversely, a lower level of attachment and social
321 integration corresponds to lower levels of vitality and social functioning.

322 The positive relationship between attachment and vitality suggests that the emotional content of
323 the relationship with significant others is an important component of vitality. In addition, the stories
324 from the residents underline the importance of social relationships and mobility as important aspects of
325 this. Our extended findings are in accordance with other studies that report positive associations
326 between social support and well-being (Tseng & Wang, 2001; Bergland & Kirkevold, 2005; Drageset
327 et al., 2009b; Rodriguez-Blazquez et al., 2012). Weiss (1973, 1974) emphasizes that significant others
328 are spouses and very close friends who provide the feeling of intimacy, security and peace, and a lack
329 of significant others contributes to experiencing negative feeling as emotional loneliness. Because of
330 the respondents' advanced age, disability and dependence, they are more likely to have difficulty in

331 maintaining close social contact. Social and emotional support seems to be important in combating
332 depression in the general population (Grav et al., 2012) and loneliness among NH residents (Drageset,
333 Kirkevold & Espehaug, 2010).

334 The relationship between opportunity for nurturance and emotional role limitations (whether
335 emotional problems interfered with such social activities as visiting friends and relatives) suggests that
336 providing more support for others would contribute to increasing role limitations. Weiss (1974)
337 emphasizes that nurturance differs from the other provisions by enquiring whether older people
338 themselves provide support. Responsibility for someone, usually children, gives meaning to an
339 individual's life in meeting obligations in various activities. One explanation for our results could be
340 loss of the ability to give the necessary support: the relationship does not make sense to the extent that
341 one wishes.

342 The individuals detailed many stories that reveal existential experiences related to suffering.
343 These findings clearly give nuances in a holistically way and with information from the results from
344 the quantitative supplementary component the researcher is able to build synthesis of the qualitative
345 findings to the quantitative results which is necessary to draw conclusion. This could also clarify
346 clinical significance and contribute to more clinically meaningful approaches. Such extended findings
347 represent a valuable contribution in planning individual care.

348

349 *Methodological considerations*

350 There are quantitative studies examining anxiety and depression, social support and the quality of life,
351 but this type of study has limitations. Suffering is a life phenomenon that provides deeper
352 understanding and different types of knowledge. Integrating quantitative and qualitative results using
353 mixed methods could therefore provide more meaningful findings than one method alone (Tashakkori
354 & Creswell, 2007).

355 Because we used a cross-sectional study design, we cannot firmly conclude on the direction of a
356 possible causal effect or preclude that these associations are effects of other unmeasured determinants.
357 However, the supplementary component can explain and contribute to deeper knowledge about
358 psychosocial aspects and well-being so that this relationship appears more clearly. Further, because the
359 study followed a cohort ($n = 227$, 30 NHs) of frail cognitively intact NH residents from 2004–2005 to
360 2011, the sample size was small at the end of follow-up. Despite small sample size and low statistical
361 power, we found meaningful statistical associations that inform the qualitative findings.

362 As discussed, the research problem is multifaceted and complex. The integrated research
363 strategy offered by a mixed-methods design therefore enabled us to clarify different aspects of the
364 phenomena (Richards & Morse, 2007). This tradition maintains that one method alone will not
365 comprehensively answer our research questions. As such, both qualitative and quantitative methods are
366 used to collect and analyze the data (Morse & Niehaus, 2009). Here, the core component is qualitative
367 data. The supplementary component (the quantitative results) informed and supported the core
368 component (the qualitative data), as described by Morse et al. (2006). In this way, the mixed-methods
369 design validated our findings while conforming to the rules inherent in each paradigm.

370 Two of the authors have skills primarily in the quantitative core method, and two authors were
371 primarily qualitative researchers. In addition, a statistician was responsible for the quantitative data
372 analysis. In that way, the researchers represented the different and overlapping research fields
373 necessary for using a mixed-methods design. In terms of validity, we believe that our different
374 platforms and expertise represented a critical contribution in the continuous discussion about possible
375 interpretations during the whole research process.

376

377 **Conclusion and clinical implications**

378 The individual stories reveal that psychosocial aspects and the phenomenon of suffering are related to
379 painful experiences during life. Symptoms of anxiety and depression were positively associated with
380 mental health, and symptoms of anxiety were associated with bodily pain. Attachment and social
381 integration were associated with vitality and social functioning. As demonstrated, the supplementary
382 component informed and supported the core component and contributes to extending knowledge about
383 the study topic. To improve the situation of residents, more attention should be paid to the residents'
384 suffering related to anxiety, depression and relationships. Here, the challenge for health care providers
385 is to grasp the individual experience and their inner meaning in the specific situation.

386

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Figure 1 (on next page)

Schematic overview

The left pathway illustrates the core component of the project (qualitative data). The right pathway illustrates the supplemental components of the project (qualitative data). The point of interface is the position at which the core and supplemental components meet. The “results narrative” refers to the write-up of the core-component findings with the addition of the results of the supplemental components.

Figure 1

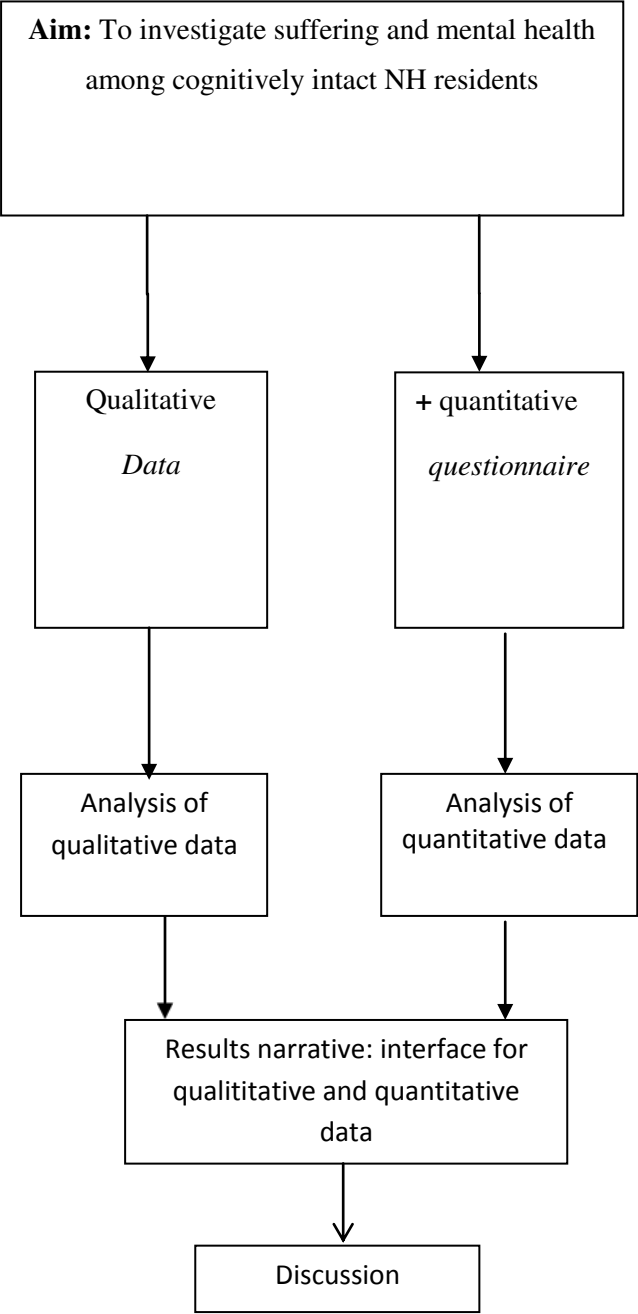


Table 1 (on next page)

Characteristics of the respondents

Functional Comorbidity Index includes 18 diagnoses scored "yes = 1" and "no = 0". A maximum score of 18 indicates the highest number of comorbid illnesses

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Table 1.

	<i>n</i>	%
	18	100
Sex		
Male	7	38.9
Female	11	61.1
Age (years)		
65–74	3	16.7
75–84	7	38.9
85–94	8	44.4
≥95	0	0
Marital status		
Widowed	11	61.1
Married or cohabiting	4	22.2
Unmarried	3	16.7
Education		
Lowest: primary school	8	44.4
Middle: <3 years after primary school	4	33.3
Highest: ≥3 years after primary school	4	22.2
Illnesses¹		
Yes	17	94.1
No	1	5.9

Table 2(on next page)

[p] Means and Standard deviation (SD)for each of five subscales of SF-36 according to sociodemographic and comorbid illnesses, and correlation coefficient for anxiety, depression and social support dimensions ($n = 18$) [

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Table 2.

	Bodily pain	Vitality	Social functioning	Role limitations, emotional	Mental health
All	64.1 (27.4)	43.9 (12.7)	81.2 (17.3)	72.2 (36.6)	68.4(13.1)
Sex^a					
Women	61.7 (28.2)	46.8 (11.9)	78.4(17.8)	66.7(42.2))	66.2 (13-2)
Men	61.7(28.2)	40.0 (13.4)	85.7 (16.8)	80.9 (26.2)	72.0 (13.1)
P*	0.791	0.211	0.425	0.659	0.425
Age (years)^b	-0.14	0.125	0.10	0.08	0.04
P*	(0.572)	(0.684)	(0.684)	(0.745)	(0.883)
Marital status^c					
Widowed	69.5 (29.4)	45.0 (13.6)	83.0 (16.7)	69.7 (40.7)	68.0 (13.6)
Married	61.2 (31.1)	47.5 (8.7)	81.2 (21.7)	75.0 (38.5)	70.0 (16.5)
Unmarried	48.3 (6.4)	35.0 (13.2)	75.0 (21.7)	77.8 (38.5)	68.0 (10.6)
P*	0.71	0.41	0.83	0.94	0.93
Anxiety^b	-0.56	-0.23	-0.34	-0.58	-0.86
P*	(0.018)	(0.385)	(0.178)	(0.016)	(<0.001)
Depression^b	-0.05	-0.23	-0.26	-0.16	-0.62
P*	(0.845)	(0.157)	(0.309)	(0.535)	(0.007)
Attachment^b	-0.145	0.562	0.257	-0.111	0.214
P*	(0.566)	(0.015)	(0.304)	(0.661)	(0.395)
Social integration^b	0.391	0.014	0.536	-0.108	-0.146
P*	(0.109)	(0.957)	(0.022)	(0.670)	(0.564)
Reassurance of worth^b	-0.407	0.334	0.258	-0.243	0.005
P*	(0.094)	(0.175)	(0.301)	(0.331)	(0.983)
Nurturance^b	0.430	0.035	0.030	-0.486	-0.125
P*	(0.075)	(0.889)	(0.907)	(0.041)	(0.622)
Grolls index^{b, d}	-0.412	-0.48	-0.15	-0.40	-0.44
P*	(0.101)	(0.050)	(0.555)	(0.108)	(0.078)

^a = Mann-Whitney U test; ^b = Spearman correlation coefficient; ^c = Kruskal-Wallis test

^d Functional Comorbidity Index. A maximum score of 18 indicates the highest number of comorbid illnesses

*bold = statistical significance at 0.05

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Table 3 (on next page)

Stages of the qualitative analytical process.

2 **Table 3.**

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1. Transcription	Data were transcribed and organized according to the interview guide
2. Open reading	Two co-authors carefully and independently read and discussed the interview text to obtain an overall impression of the participants' experiences
3. Identifying meaning units	Patterns in the data were identified by dividing the text into meaning units
4. Categories	Important nuances were discovered by searching for common and distinctive features as well as variation and agreement about suitable categories
5. Forming themes	Two subthemes were formulated Thereafter, analytical reflection and abstraction were performed by searching for an overall theme
6. Reflection and discussion	Dialogue was searched for relevant theory to illuminate and deepen understanding of the findings

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Table 4 (on next page)

The qualitative content analysis.

2 **Table 4.**

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Categories	Subtheme	Theme
Earlier life experiences	Painful experiences in earlier life	Suffering as a complex psychosocial entity
Loss by death		
Instability		
Lack of hope		
Mental strain		
Traumatic events		
Present life experiences	Painful experiences in recent life	
Loss by death		
Loss of health		
Lack of social relationships		
Lack of courage to live		
Lack of hope		

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