**Association of adult attachment and suicidal ideation in primary care patients with multiple chronic conditions**

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**Abbreviations:** APRICARE study: Adult Attachment in Primary Care study; BMI: Body mass index; ECR-RD12: Experiences in Close Relationships-Revised; GPs: General practitioners; PHQ: Patient Health questionnaire

**Abstract**

**Background:** Suicidal ideation is a common health concern in primary care. Attachment theory indicates that subjects with higher anxiety and/or avoidance may be more susceptible to suicidal ideation. Therefore, the aim of our study was to examine the association of attachment anxiety, avoidance, and suicidal ideation in middle-aged to elderly, chronically ill primary care patients.

**Methods:** The APRICARE Study comprised 207 patients aged 50–85 years with a minimum of three chronic diseases. Adult attachment, depressive symptoms and suicidal ideation were measured via the self-report questionnaires Experiences in Close Relationships–Revised (ECR-RD12) and Patient Health Questionnaire – 9 (PHQ-9). Univariable and adjusted associations of suicidal ideation with ECR-RD12-attachment anxiety, ECR-RD12-attachment avoidance, and ECR-RD12-insecure adult attachment were examined via logistic regression analyses.

**Results:** Suicidal ideation was present in 13% of all patients. ECR-RD12-anxiety was significantly associated with suicidal ideation (OR = 1.88, CI 1.44-2.44), while ECR-RD12-avoidance was not associated. In patients with suicidal ideation, 85% were insecurely attached compared to 63% in those without suicidal ideation – thus the OR for suicidal ideation in insecurely attached patients was 3.33 (CI = 1.10-10.04) with securely attached patients as reference. Further variables associated with suicidal ideation were depressive symptomatology, living alone (especially in men) and obesity (especially in women).

**Limitations:** The study was cross-sectional in design, and suicidal ideation was assessed using a single item self-report measure.

**Conclusion:** General practitioners should be aware of attachment styles in order to have a better chance to identify patients at risk for suicide.

**Key words**: primary health care, suicidal ideation, insecure attachment, cross-sectional study

1. **Introduction**

**1.1 Suicidal ideation in primary care**

Studies indicate that about 12% of primary care patients are bothered by thoughts of being better off dead or of hurting themselves (Wiborg et al., 2013). A review of 40 studies found that within one month prior to their suicide, 45% of the patients had had contact with their primary care physicians (GPs) (Luoma et al., 2002). Therefore, GPs may play an important role in suicide prevention.

**1.2 Attachment types and typical interaction patterns with health care professionals**

In order to assist GPs in forming stable and trusting relationships with their patients, knowledge about adult attachment theory by D. Griffin and K. Bartholomew (Griffin and Bartholomew, 1994) has been recommended (Thompson and Ciechanowski, 2003). Furthermore, previous studies have shown that people with certain attachment types may be more prone to develop depressive symptoms and suicidal ideation (Grunebaum et al., 2010; Lizardi et al., 2011; Ozer et al., 2015).

According to the attachment model (Griffin and Bartholomew, 1994), GPs may be able to identify their patients’ attachment styles by the following characteristics: Patients with a secure attachment style trust in themselves and others, seek appropriate support, cooperate and contribute to their healthcare. Insecure attachment develops due to adverse experiences with rejecting, unresponsive or controlling caregivers and can be divided in three groups: dismissing, preoccupied and fearful. Patients with a dismissing attachment style do not trust in others and do not expect efficient help and support by their physicians. They tend to downplay symptoms - thus their condition may worsen suddenly. Patients with a preoccupied attachment style trust in others, but not themselves. They may act very clingy, express a constant signal of distress and tend to overuse the health care system. Finally, patients who have adopted a fearful attachment style view caregiving as potentially threatening, do not trust in themselves or others, and will most likely not stick to any medical treatment (Hooper et al., 2012; Hunter et al., 2016).

Numerous studies have been published on attachment insecurity, depression and suicidal ideation in adolescents (e.g. (Falgares et al., 2017)). In contrast, data on middle-aged to elderly primary care patients with multiple chronic conditions are scarce. Therefore, the aim of the present analysis was to investigate attachment and suicidal ideation in a sample of chronically ill patients aged 50-85 years in Germany. Obesity, living alone, and education were included in the analysis as potential confounding factors, since they have been reported to have an influence on suicidal ideation as well (Burrows and Laflamme, 2010; Klinitzke et al., 2013; Schneider et al., 2014).

1. **Methods**

**2.1 Study design and recruitment**

The aim of the APRICARE (Adult Attachment in Primary Care) study was to identify associations between adult attachment and self-management skills, and evaluate self-management behaviour in patients with the most common multiple chronic diseases among middle-aged to elderly patients in a primary care setting in Germany. The study included 219 patients aged 50 to 85 years, with two predefined chronic diseases (type II diabetes and hypertension) and at least one other chronic condition (Suppl. Table 1) from eight general practices in Germany. It was designed as a multicentre, prospective, longitudinal, observational cohort study. The study has been described in detail elsewhere (Brenk-Franz et al., 2015; Brenk-Franz et al., 2017). The recruitment was carried out in accordance with the primary care research recruitment rules of “The German Multi-Care-study” (Schäfer et al., 2009). Recruitment and baseline data collection took place from March 2012 until June 2012. The study was conducted in accordance with the “Declaration of Helsinki”, the guidelines of Good Clinical Practice and was approved by the Institutional Review Board of the Jena University Hospital (No. 3009-12/10). All participants gave their written informed consent.

**2.2 Variables**

**Adult Attachment**

The short form of the German version of the “Experiences in Close Relationships–Revised” questionnaire (ECR-RD12,) is a 12-item measure of adult attachment style with a seven-point Likert scale. In a previous evaluation, the internal consistencies of the anxiety scale and the avoidance scale were Cronbach’s α = 0.88 and 0.87 respectively (Brenk-Franz et al., 2018).

We calculated logistic regression models using the two continuous dimensions of the ECR-RD12, anxiety and avoidance, and defined the two categories secure and insecure attachment for sensitivity analysis. Four categorical attachment types were calculated by dichotomizing the two scales anxiety and avoidance respectively at the cut-point of the calculated medians (1.17 for anxiety, 2.0 for avoidance) as recommended by R.C. Fraley (Fraley, 2012). Thus, a two-by-two-matrix could be constructed yielding the four attachment types (low anxiety-low avoidance = secure, low anxiety-high avoidance = insecure-dismissing, high anxiety-low avoidance = insecure-preoccupied, high anxiety-high avoidance = insecure-fearful). We contrasted secure attachment against the other three types (“insecure attachment”). We do not report results stratified by all four groups because categorizing ECR-RD12 score results into four attachment groups according to Bartholomew has been criticised, since there are no “natural” cut-points (Fraley, 2012).

**Depressive Symptomatology**

The Patient Health Questionnaire-9 (PHQ-9) is a standardized and validated psychodynamic instrument to assess severity and treatment success of depression. Its internal consistency has been reported to be very good with Cronbach’s α = 0.89 (Kroenke et al., 2001).

For APRICARE, a modified version of the PHQ-9 was used. Since the study population consisted of individuals 50 years and older, whose sleeping behaviour follows specific patterns (Duffy et al., 2015) and senior patients are more likely to be overstrained with questions based on conceptual contradictions, we excluded item 3, “Trouble falling or staying asleep, or sleeping too much.”; and question 8 was split into two items “Moving or speaking so slowly that other people could have noticed. Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual.” Due to these modifications we were not able to provide a medical diagnosis of depression. We included the original PHQ-9 item no. 9 on suicidal ideation in our PHQ-8\* score, but excluded it from our PHQ-7\* score since it was used to define suicidal ideation groups.

**Suicidal Ideation**

As in previous studies (e.g. (Ladwig et al., 2008; Teismann et al., 2018)) suicidal ideation was assessed using the respective item of the PHQ-9: “Over the last 2 weeks, how often have you been bothered by any of the following problems? -Thoughts that you would be better off dead or of hurting yourself in some way”. The answer “Not at all” was translated to “No suicidal ideation”, all other response options (“Several days“, “More than half the days“, “Nearly every day“) were classified “Suicidal ideation”.

**Obesity**

Weight and height measurements were used to calculate the Body Mass Index (BMI). The BMI was then dichotomized into the categories normal weight/overweight vs. obesity following WHO recommendations.

**Living alone**

Participants were asked, if they currently lived together with a partner irrespective of marital status.

**School education**

School education was coded in three classes: 1. No graduation or primary school, 2. Secondary modern school or polytechnic secondary school (10th grade, 8th grade before 1965), 3. General qualification for university entrance or vocational diploma.

**2.3 Statistical Analyses**

Group differences in descriptive analyses were assessed using univariable logistic regression models. For adjusted analyses, multivariable logistic regression models were applied. Multicollinearity was tested by computing the variance inflation factor VIF, as well as the raw and intercept-adjusted condition indices. C-values (ROC curves) are included in Table 2 to show model fit.

The baseline APRICARE population comprised 95 women and 124 men; due to missing information on different variables (see Table 1) we analysed data of 87 women and 120 men. A *p*-value <0.05 was considered to be statistically significant. SAS Version 9.3 for Windows (SAS Institute, Cary, NC) was used for all statistical analyses.

1. **Results**

Table 1 shows basic characteristics of the study population stratified by suicidal ideation. The proportions of men and women were not significantly different between groups. Specificities that were significantly more frequent in the suicidal ideation group included obesity (77.8 vs. 55.6%, *p* = 0.0344) and living alone (40.7 % vs. 22.2%, *p* = 0.0415). Moreover, patients with suicidal ideation had a mean PHQ-7\* score of 8.1 points compared to their counterparts with 3.5 points.

Participants with suicidal ideation had a mean ECR-RD12-anxiety score of 3.2 points and a mean ECR-RD12-avoidance score of 2.6 points compared to 1.7 and 2.3 points respectively in patients without suicidal ideation.

A minority of 33.8% (26.4% of women, 39.2% of men, *N* = 70) of the patients were classified to a secure attachment style. Mean age was 66.4 years and also similar in the two attachment groups (data not shown). Secure attachment was significantly more frequent in patients without suicidal ideation (*p* = 0.0328).

Multicollinearity tests revealed values of VIF close to 1; the intercept adjusted condition indices were also smaller then 1, indicating no problems with multicollinearity.

Results of the logistic regressions are presented in Table 2. The raw OR of the association of the continuous dimension ECR-RD12-anxiety with suicidal ideation was 1.88 (CI 1.44-2.44, *p* <.0001) (model 1A). In the fully adjusted model (model 1B) this association was no longer significant, since the effect was mediated mainly by depressive symptomatology ([aOR] of PHQ-7\*: 1.63, CI 1.32-2.00, *p* <.0001). However, in a model including only ECR-RD12-anxiety and the PHQ-7\* score (model 1C) both variables had significant [aORs] of 1.43 and 1.55 respectively. The ECR-RD12-avoidance score was not significantly associated with suicidal ideation in a univariable model (model 2) and not significant in adjusted models (data not shown). If both ECR-RD12-dimensions were included in one model, ECR-RD12-anxiety was significantly associated with suicidal ideation ([aOR] = 1.87, CI 1.43- 2.45), ECR-RD12-avoidance was not associated (model 3).

If attachment security was defined in two groups, insecure attachment had a raw OR of 3.33 (CI = 1.10-10.04) for suicidal ideation. Adjusted by obesity and living alone (model 4), the [aOR] of insecure attachment with suicidal ideation was 2.53 (CI 0.81-7.91).

1. **Discussion**

We found a clear association of ECR-RD12-attachment anxiety and insecure adult attachment with suicidal ideation in chronically ill primary care patients aged 50-85 years. With increasing anxiety, the odds for suicidal ideation also increased (OR = 1.88). Patients with an insecure attachment type were about three times as likely to be affected by suicidal ideation as their secure counterparts.

A previous, population-based study revealed comparable results: Palitsky et al. analysed attachment self-report interview data (N=5,692) and found a significant association for insecure attachment and suicidal ideation ([aOR] range = 1.13-1.81) (Palitsky et al., 2013).

Insecure attachment and attachment anxiety can be understood as an expression of low perceived social support and thwarted belonging, which have been shown to be associated with increased risk for suicidal ideation (Van Orden et al., 2010). Some authors suggest that insecure attachment confers vulnerability for suicidality (Falgares et al 2017) and that avoidance attachment may be a more specific marker of risk for suicide attempt than suicidal ideation (Grunebaum et al 2010).

Even though patients usually trust their GPs, using the ECR questionnaire during a patient’s consultation might be rather uncomfortable, since many patients do not wish to disclose the quality of their relationship with their partner including their intimate feelings, especially in a systematic and written form. Thus, it would not be helpful for GPs to use the ECR-RD12 in order to identify patients at risk for suicidal ideation. Additionally, the length of the ECR-RD12 limits its feasibility in a primary care setting. Thus, GPs familiar with attachment types may use their long-time relationship with their patients to intuitively assess patients’ attachment anxiety; in patients with anxious and/or insecure attachment style, GPs should deliberately explore depression and suicidal ideation.

In future studies, appropriate tools that can be used by GPs should be examined, e.g. short screening instruments such as the P4-questionnaire (Dube et al., 2010).

Moreover, patients with insecure attachment styles benefit from interventions aimed at improving their particular attachment style (‘attachment-based care’, ABC). General principles include clarifying patients’ expectations, individualizing care, finding out about the patient’s social support network, asking about the patient’s previous coping strategies, and considering whether another clinician might be better for the patient (Brenk-Franz et al., 2011; Wilhelm and Tietze, 2016).

1. **Strengths and Limitations**

The strength of the present study was the focus on chronically ill middle-aged and elderly patients, who represent a large part of the patients in primary care. Furthermore, we used a well-established instrument (ECR-RD12) to assess attachment styles.

There are some limitations to the current study. First, the present investigation is a cross-sectional analysis; therefore, conclusions on causality cannot be drawn. Second, suicidal ideation was assessed using a single item only. Single-item assessments are associated with an increased risk of misclassification (Millner et al., 2015). Nonetheless, Simon et al. reported strong evidence for the predictive ability of the PHQ suicide item (Simon et al., 2013). Third, modifications made to the PHQ-9 do not allow comparison with other studies. Our sample consisted of older, multimorbid patients. It therefore remains unclear to what extent results generalize to other samples. Finally, all items on suicidal ideation and attachment style were self-reported.

1. **Conclusion**

Suicidal ideation is a considerable challenge in primary care. Insecure, anxious adult attachment is associated with increased odds of suicidal ideation in middle-aged to elderly, chronically ill primary care patients. Therefore, knowledge about attachment types may help GPs identify patients at risk of suicidal ideation.

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Declarations of interest: none.

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**Contributors**

IMRE analysed the data and wrote the manuscript, KL gave statistical advice, edited, and complemented the manuscript, KBF, BS and JG devised and conducted the APRICARE study, gave advice, and edited the manuscript. All authors approved the final article.

**Table 1: Characteristics of the study population stratified by suicidal ideation (PHQ-9 item no. 9)**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Suicidal ideation** | **No suicidal ideation** | **Total** |
| **PHQ-9 item no. 9**: “Thoughts that you would be better off dead or of hurting yourself in some way” | “Several days“,  “More than half the days“, or  “Nearly every day“ | “Not at all.” |  |
| **N (%)** | 27 (13.0) | 180 (87.0) | 207 (100.0) |
|  |  |  |  |
| Women (%) | 48.2 | 41.1 | 42.0 |
| 50-60 years (%) | 44.4 | **24.4** | 27.1 |
| 61-70 years (%) | 22.2 | **42.8** | 40.1 |
| 71-85 years (%) | 33.3 | 32.8 | 32.9 |
| BMI (kg/m2), mean (std) | 36.3 (7.1) | **30.9** (5.3) | 31.6 (5.8) |
| BMI >=30/Obesity (%) | 77.8 | **55.6** | 58.5 |
| Living alone (%) | 40.7 | **22.2** | 24.6 |
| <= Primary school (%) | 40.7 | 25.3 | 27.3 |
| Secondary school (%) | 44.4 | 54.5 | 53.2 |
| Qualification for university (%) | 14.8 | 20.2 | 19.5 |
|  |  |  |  |
| 🞇 PHQ-8\* score, mean (std) | 9.3 (2.8) | **3.5** (2.6) | 4.3 (3.3) |
| 🞇🞇 PHQ-7\* score, mean (std) | 8.1 (2.7) | **3.5** (2.6) | 4.1 (3.0) |
|  |  |  |  |
| ECR-RD12-anxiety score, mean (std) | 3.2 (1.9) | **1.7 (1.1)** | 1.9 (1.4) |
| ECR-RD12-avoidance score, mean (std) | 2.6 (1.3) | 2.3 (1.4) | 2.3 (1.4) |
|  |  |  |  |
| Secure attachment (%) | 14.8 | **36.7** | 33.8 |
| Insecure attachment (%) | 85.2 | **63.3** | 66.2 |
|  |  |  |  |

Bold print indicates a significant difference between groups.

🞇 PHQ-8\*: including PHQ-9-item on suicidal ideation.

🞇🞇 PHQ-7\*: excluding PHQ-9-item on suicidal ideation.

**Footnotes:**

PHQ-7\* and PHQ-8\*: Please note that item 3 of the standard PHQ-9 (“Trouble falling or staying asleep, or sleeping too much”) is missing, and item 8 (“Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual”) had been divided into two sub-items in the questionnaire which were statistically merged later during the analysis. Refer to the Methods section for more information.

Twelve datasets of the original study population were excluded due to missing values in main variables of interest (ECR-RD12 and PHQ-9). Since only one item each was missing in the PHQ-8\* questionnaires of two participants, these missing items were imputed by the mean values of the other seven items. Data for 37 cases of missing BMI were imputed by measurements of the follow-up studies (N=20) or the mean of all baseline data on BMI stratified by suicidal ideation (N=17). Ten participants had missing information on living with a partner, but stated that they were married; thus, we assumed that these people were living or had until recently lived with a partner. Two participants had missing data on school education and were excluded only from models adjusted by this variable.

**Table 2: Logistic regression models: Associations of the two ECR-RD12-attachment dimensions anxiety and avoidance and ECR-RD12-attachment insecurity with suicidal ideation**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **OR** | **CI** | **p-value** |
| **Modell 1A: Attachment anxiety, raw** (c=0.74) |  |  |  |
| ECR-RD12-anxiety score | **1.88** | **1.44-2.44** | **<.0001** |
| **Modell 1B**🞇**: Attachment anxiety, fully adjusted** (c=0.92) |  |  |  |
| ECR-RD12-anxiety score | 1.36 | 0.98-1.89 | 0.0677 |
| Women vs. men | 1.32 | 0.45-3.87 | 0.6112 |
| Age 50-60 vs. 71-85 y. | 1.88 | 0.49-7.30 | 0.3609 |
| Age 61-70 vs. 71-85 y. | 0.47 | 0.11-2.11 | 0.3265 |
| Obesity | 2.44 | 0.69-8.66 | 0.1673 |
| Living alone | 3.17 | 0.93-10.73 | 0.0643 |
| <= Primary school vs. Qal. Uni. | 1.87 | 0.32-10.88 | 0.4853 |
| Secondary school vs. Qal. Uni. | 1.50 | 0.27-8.25 | 0.6437 |
| PHQ-7\* | **1.63** | **1.32-2.00** | **<.0001** |
| **Modell 1C: Attachment anxiety, adjusted by PHQ-7\*** (c=0.90) |  |  |  |
| ECR-RD12-anxiety score | **1.43** | **1.05-1.93** | 0.0214 |
| PHQ-7\* | **1.55** | **1.31-1.85** | **<.0001** |
|  |  |  |  |
| **Modell 2: Attachment avoidance,** **raw** (c=0.57) | 1.16 | 0.87-1.54 | 0.3033 |
| ECR-RD12-avoidance score |  |  |  |
| **Model 3: Both dimensions** (c=0.74) |  |  |  |
| ECR-RD12-anxiety score | **1.87** | **1.43-2.45** | **<.0001** |
| ECR-RD12-avoidance score | 1.02 | 0.72-1.46 | 0.9071 |
|  |  |  |  |
| **Model 4: Insecure vs. secure attachment, raw** (c=0.61) |  |  |  |
| Insecure vs. secure attachment | **3.33** | **1.10-10.04** | **0.0328** |
|  |  |  |  |
| **Model 5: Insecure vs. secure attachment, adjusted by obesity, living alone** (c=0.70) |  |  |  |
| Insecure vs. secure attachment | **2.53** | **0.81-7.91** | **0.1109** |
| Obesity | **2.76** | **1.04-7.31** | **0.0418** |
| Living alone | 2.14 | 0.88-5.20 | 0.0917 |

🞇Two participants had missing data on school education and were deleted from this model.

**Highlights**

* Insecure attachment increases the odds of suicidal ideation.
* GPs familiar with attachment styles may play an important role in suicide prevention.
* In men, suicidal ideation was additionally associated with living alone.
* In women, suicidal ideation was additionally associated with obesity.