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Repressive coping in geriatric patients' reports – Impact on fear of falling

Repressives Coping in Berichten von Geriatrischen Patienten – Einfluss auf Angaben zur Sturzangst

► Abstract We investigated the influence of repressive coping, depression, cognition, education and age on geriatric patients' reports on health-related status in 80 geriatric patients with a history of injurious falls. For patient reports, subjective statements on activity avoidance, perception of terminal decline, falls, and fear of falling were assessed. Co-morbidity and number of medications were documented based on patient charts.

Repressive coping was significantly associated with underreporting in geriatric patients in all items documented and predicted most variables of patients' reports. Because of underreporting significant health problems geriatric patients with repressive coping may therefore be at risk for inadequate medical treatment.

Key words patient reports – emotional status – repressive coping – fear of falling – falls

Zusammenfassung Wir untersuchten den Einfluss von repressiven Coping-Strategien, kognitiver Leistung, Depression, Bildung und Alter auf Patienten-Berichte zu definierten Variablen des Gesundheitsstatus bei 80 geriatrischen Patienten nach schwerem Sturz. Als Variablen der Patientenberichte wurden subjektive Angaben zur Vermeidung von körperlicher Aktivität, die subjektive Einschätzung, dass der Tode bevorsteht, Sturzangst, und Stürze erhoben. Die Co-Morbidität und Anzahl der Medikamente wurde aus den Patientenakten dokumentiert.

Repressives Coping war signifikant assoziiert mit geringerer Bericht-Häufigkeit der Patienten in allen erhobenen Variablen und stellte einen signifikanten Prädiktor für fast alle Variablen aus Patientenberichten dar. Aufgrund der unzureichenden Aussagen zu Gesundheitsproblemen weisen geriatrische Patienten, die repressive Coping-Strategien benützen, möglicherweise ein höheres Risiko auf, medizinisch nicht adäquat behandelt zu werden.

Schlüsselwörter

Patient Aussagen – emotionaler Status – repressives Coping – Sturzangst – Stürze

Introduction

The accuracy of patients' reports is crucial for an adequate diagnostic pathway and effective medical therapy [1, 2]. However, the single causes of misreports or inadequate reports in older persons have scarcely been identified. Non-reporting in geriatric patients has often been interpreted as age-associated forgetfulness or as a sign of cognitive impairment. Such factors may indeed influence the accuracy of patient reports [3, 4] and the perceptions of health professionals [5], but, like in younger persons or specific diseases, other factors such as education, depression or psychological coping strategies are also likely to be involved. The influence of education on the accuracy of patient reports is controversial. While some studies have not reported an effect of educational levels [6], others report greater misreport in persons with less education [7–10]. Depression is associated with increased use of general health care services and greater mortality [11, 12]. Depression has been reported to influence the accuracy and frequency of patients' reports of chronic diseases and self-rated health [13-15] as well as affect their use of medical services and outcomes [16].

A crucial aspect in communication with patients suffering from severe chronic diseases is the patients' strategy to cope with illness and its perceived negative outcomes. Different coping strategies such as denial, anger, bargaining, depression and acceptance have been described in the course of severe or terminal diseases [17]. Only when patients accept their disease is coping regarded to be successful. Other coping styles are considered inadequate and detrimental to the patients' quality of life. However, whilst denial or repressive coping may also have positive effects such as maintaining an optimistic view, reducing fear and buffering posttraumatic stress disorders [18-20], denial predominantly decreases the ability to cope with serious illness. Repressive coping strategies also have personal consequences, as repressive patients fail to make necessary legal, financial, and health care arrangements such as advanced care planning in serious or terminal illness [18, 21].

Patients showing a high level of repressive coping may often not report symptoms of diseases as these are perceived as reminders of anxiety-associated threat and are therefore repressed. Denial of disease has been discussed as a major cause of false patient reports [6]. Recent research suggests that denial occurs in almost a third of patients with advanced serious illness [22]. It has been found to have negative effects on communication, the correctness of patient reports and treatment in chronic diseases such as diabetes, hypertension, bipolar disorders or cancer [23–26]. Partial or complete denial are considered characteristic psychological defense mechanisms in Alzheimer's disease [27]. In patients with coronary heart disease (CHD) the occurrence of silent (non-symptomatic or in this context non-reported) myo-cardial ischemia is significantly associated with repressive coping strategies measured by the Repression vs. Sensitization (R/S) Questionnaire as used in this study [28].

Apart from characterizing and affecting individual patient's emotional status and medical treatment, denial or repressive coping also poses significant problems in collecting nationwide health surveillance data such as cancer registries, challenging the representativeness and utility of these efforts [29, 30].

Older persons may be especially affected, since the ageing process itself [31] as well as associated severe diseases may be denied. Denial or repressive coping is frequent in the severe chronic diseases which are characteristic for older patients' health status. In geriatric patients the impact of severe chronic diseases is further increased by an age-related decline in physical resilience at the end of life. Severe health problems such as injurious falls are often perceived by these patients as menacing signs of a terminal decline or, as they would say, "the beginning of the end". A high percentage of geriatric patients would prefer death to chronic states such as injurious falls, coma, recurrent pain, severe dysfunction, institutionalization and social isolation [32, 33]. When patients perceive their life situation like this they face great psychological challenges and frequently experience emotional distress [18]. When anxiety reaches a high level and patients lack adequate coping resources, symptoms of disease may therefore be denied.

As well as indicating patients' severe psychological distress and reduced quality of life, denial may lead to inadequate treatment of the underlying disease, as symptoms are not reported by patients and therefore not treated. Although repressive coping has been discussed before as causes of misreport in geriatric patients with a history of falls or other trauma patients [3, 34], it has to our knowledge not been identified as a significant predictor of geriatric patients' self-reports on health status.

In this study we examined the role of repressive coping and other potentially influential factors as predictors of patient reports concerning previous falls, future physical activity avoidance, subjective perception of terminal illness, reports on medication and co-morbidity and their impact on fear of falling in geriatric patients admitted to hospital because of injurious falls.

Patients and methods

Study subjects

A consecutive series of geriatric patients admitted to hospital because of a recent history of serious falls were recruited using defined inclusion criteria. Inclusion criteria: age >60 years, written informed consent to the study protocol, ability to participate in the study interviews, within last 3 months at least one fall causing an injury that led to hospital admission or was documented in hospital; no history of stroke or other relevant neurological disease, no severe cognitive impairment (MMSE>17 scores) and no other severe physical or psychiatric illness that precluded participation. The test protocol was approved by the local ethical committee and conformed with the Helsinki Declaration.

Measurements

Educational level (years of educational and professional training) and age (years) were documented in a standardised manner by patient interview. Number of medications and diagnoses were extracted from patient charts and were documented as clinically relevant factors related to patient reports. Cognitive status was assessed by Mini Mental State Examination (MMSE) [35], depression by the Geriatric Depression Scale (GDS) [36].

Fear of falling was assessed by single item (categories: no – little – some – lot of fear) [37] and a comprehensive questionnaire including the patients' perception of functional and psychosocial aspects of falls [38]. Avoidance of (future) activity was assessed by an established questionnaire [38].

Patients were asked about their history of falls by the question: "*Did you experience a fall before?*" The perception of whether the patients felt that they experienced a terminal decline was assessed by the question: "*Do you believe that your fall is the beginning of the end?*" (categories: no – a little – quite so – very much).

Coping strategies were assessed by a validated, bipolar assessment instrument for repression and sensitization [39]. In this questionnaire repression and sensitization represent two opposing poles of coping strategies, scored in a continuous scale (range 0– 106). Lower values indicate repressive coping, higher values a more sensitizing coping strategy. The construct of repression is characterized as a defensive, non-attentive or denial mechanism that represses anxiety-related information. Sensitization is described as a vigilant, attentive, sensitizing strategy [39, 40]. Medium values would indicate non-polar coping. Tinetti's POMA (Performance Oriented Motor Assessment) [41] was introduced as a variable for objective measurement of functional performance as opposed to the patients' subjective rating documented by independent physiotherapists not related to the study staff.

Statistical analysis

Statistical procedures were performed on SPSS version 10.0 for Windows software [42]. Exploratory data analysis determined the variability and distribution of outcome variables. Logistic regressions (forward stepwise procedure) were performed to predict the dichotomous variables: history of falls (no fall vs. fall), terminal decline and fear of falling (dichotomized according to response categories. No, little vs. some, much). Stepwise linear regressions were performed to predict number of diagnoses, number of medications, fear of falling (comprehensive questionnaire), activity avoidance, and the control variable (POMA). As independent variables age, depression (GDS), cognitive status (MMSE), education (yrs.) and coping strategy (R/S) were initially included in the stepwise linear regression and logistic regression. All independent variables which remain in the model after stepwise regression were documented in tables.

For calculating odds ratios in dichotomous variables, patients were grouped into three groups by the tertiles related to repression/sensitization scores. T-Tests were performed for comparison between patient groups. These were dichotomized by report (yes/no) of falls, fear of falling and perception of terminal decline. For continuous variables such as avoidance of physical activity, comorbidity, or medication the group was dichotomized by the mean value of these variables (Fig. 1).

Results

Eighty patients were recruited consecutively in a geriatric rehabilitation ward. All patients had experienced an injurious fall within the last 3 months and were admitted to hospital because of a fall-related diagnosis. One third of the patients were identified as depressed (GDS < 5) or cognitively impaired (MMSE < 24). Of the patients 70% (n = 56) reported a previous fall, 62% (n = 50) reported no or little fear of falling, and 67% (n = 54) did not perceive that the fall would be a symptom for terminal decline. Descriptive data for the study sample are summarized in Table 1.



Fig. 1 Given are R/S scores (error bars indicate standard deviations) for dichotomous or dichotomized patient reports. First vs. second row indicates R/S scores for patients who reported: no falls vs. falls; no perception of terminal decline vs. perception; no fear of falling vs. fear of falling for dichotomous items. Results of continuous variables of social fear of falling; avoidance of physical activity,

Table 1 Study population

Parameter	Mean	Median	Range
Age [yrs] Education [yrs] Diagnoses [n] Medication [n] MMSE [scores] GDS [scores] RS [scores] Activity Avoidance [scores] POMA [scores] Fear of falling (comprehensive) [scores]	82.6 SD 7.6 10.5 SD 3.0 7.6 SD 2.4 7.28 SD 3.22 24.60 SD 3.9 4.29 SD 3.4 37.43 SD 17.9 34.14 SD 17.9 12.09 SD 6.24 30.21 SD 6.04	82 11 8 7 26 3 37 34.5 12 30	60-102 3-21 2-13 1-18 15-30 0-15 4-77 4-77 1-26 15-44

Yrs years; *n* number; *SD* standard deviation; *MMSE* Mini Mental State Examination; *GDS* Geriatric Depression Scale; *RS* Repression/Senzitization Score; *POMA* Performance Oriented Motor Assessment (Tinetti Score)

The group which did give no (dichotomous items) or less frequent report (dichotomized items) had significantly lower mean R/S scores in all documented variables, indicating repressive coping as a significant aspect of patients' underreporting (Fig. 2).

All dependent variables in correlation analysis showed a significant association to R/S scores (coping strategy). As expected, the variable which was not dependent on patient reports (Tinetti-POMA score) was not correlated with R/S results (Table 2).

The coping strategy as assessed by the repressionsensitization (R/S) questionnaire was the dominant predictor of most dependent variables. Only avoidance of physical activity was not predicted by R/S, but was significantly correlated with R/S. For co-morbidity and fear of falling (comprehensive questionnaire innumber of medication, number of diagnosis were dichotomized by the mean. First row gives R/S scores for lower half indicating less reported fear of falling, less activity, less medication, less diagnosis. The second row gives R/S scores for upper half indicating more frequent patient reports on these items. P-values indicate differences between dichotomized groups compared by T-test



Fig. 2 Correlation of repression/sensitization vs. fear of falling

cluding social dimension) coping strategies (R/S) and additionally cognitive status (in co-morbidity) and depression (in fear of falling) were significant predictors (Tables 2 and 3). Fear of falling, history of falls, and perception of terminal decline was significantly predicted by R/S only (Table 4).

To assess the odds ratios between groups of persons with different coping strategies, patients were grouped into three subpopulations according to R/S tertiles. Compared to the reference group (non-polar coping, intermediate tertile) the most repressive patients (lower tertile) showed significantly lower odds ratios for record of falling (OR: 0.197, p=0.01), record

 Table 2
 Spearman correlations between dependent and independent variables (univariate analyses)

Dependent variable	R/S	GDS	MMSE	Educa- tion	Age
Number of diagnoses [n]	0.282*	0.180	-0.357 **	-0.221*	0.111
Number of medications [n]	0.364 **	0.188	0.016	-0.144	-0.101
Fear of falling (questionnaire)	0.629 ***	0.518**	-0.179	-0.082	0.111
Activity avoidance	0.335 **	-0.355 **	-0.212	-0.115	-0.363 **
Variable not based on patient reportTinetti-POMA score-0.057-0.0860.2290.245*-0.187					

R/S Repression/Sensitization; *GDS* Geriatric Depression Scale; *MMSE* Mini Mental State Examination. Significant correlations between variables are marked bold: $p = * \le 0.05$, $* \le 0.01$; $* * \le 0.001$

Table 3 Results of linear regression indicating significant predictors

Dependent variable	Significant predictor(s)	Non- standardized coefficient B	95% confidence interval	p-value
Number of diagnosis [n]	R/S MMSE	0.0320 -0.150	0.003-0.060 -0.280-0.021	0.030 0.023
Number of medication [n]	R/S	0.067	0.029-0.106	0.001
Fear of falling	R/S	0.169	0.106-0.231	< 0.001
questionnaire [scores]	GDS	0.546	0.217-0.875	0.001
Activity avoidance	Age	0.418	0.213-0.622	< 0.001
[scores]	GDS	0.866	0.405-1.326	<0.001

For each dependent variable (number of diagnoses, number of medications, fear of falling, activity avoidance) age, depression (GDS), cognitive status (MMSE), education (yrs) and coping strategy (R/S) were initially included in the stepwise linear regression as independent variables. The table indicates all independent variables which remain in the model after stepwise regression

Table 4 Significant predictors within logistic regression

Dependent variable	Predictor	Odds ratio	95% confidence interval	p-value
History of fall Terminal decline	R/S R/S	1.031 1.040	1.001–1.062 1.009–1.072	0.042 0.011
FOF (dichotomized)	R/S	1.051	1.019–1.084	0.001

For each dependent variable (history of fall, terminal decline, fear of falling (FOF)) age, depression (GDS), cognitive status (MMSE), education (yrs) and coping strategy (R/S) were initially included in the stepwise linear regression as independent variables. The table indicates all independent variables which remain in the model after stepwise regression

of perception of terminal decline (OR: 0.250; p=0.02) and fear of falling (dichotomized) (OR: 0.173; p=0.005), indicating a substantial underreporting in patients with repressive coping. The upper R/S tertile did not significantly differ from the intermediate ("normal") tertile.

Discussion

In this study, the predictive value of age, education, cognitive status, depression and coping strategies for reports of geriatric patients have been evaluated. Repressive coping was the dominant predictor of reports in geriatric patients with a recent history of injurious falls.

Study results in these frail geriatric patients confirm previous findings which identified repressive coping/denial as an important defense mechanism in severe illness. In the following the association between denial and single dependent variables are discussed.

Fear of falling

Fear of falling is widespread among older people and persons who experienced a fall [43–45]. Falls and their perceived sequelae are among the most feared events in the life of older persons. Fear of falling ranks high when compared to other substantial fears and a majority of older persons even prefer a premature death to a serious fall and it's perceived negative outcome [32, 33]. It has been reported to be associated with a variety of parameters such as motor insecurity [37], poor functional performances [43, 45–47], falls [44–46, 48], fall-related injuries [49], cognitive impairment [43, 47] and curtailed social and physical activities [43–45]. Fall-related selfefficacy improves when functional performance has been increased during physical training [50].

The focus of research into fear of falling has to date been functional performance or physical activity. Only a limited number of studies report on associations with social or psychological parameters such as depressed mood [44], decreased quality of life [44, 51] or poor self-rated health status [43, 45]. Considering that fear of falling is predominantly a psychological parameter this is surprising.

The focus on functional performance may derive from the fact that many fall efficacy scales or fear of falling questionnaires use functional items such as doing house work or walking on uneven surfaces as in Tinetti's FES questionnaire, which represents an early, well established standard for such scales [52, 53]. As expected in this study we could not detect a significant correlation between repressive coping and results of a functional performance score (POMA). However, repressive coping strategies correlated significantly with the single question assessing fear of falling, as well as with the comprehensive questionnaire, that focuses on social and functional aspects of fear of falling. Results of the R/S questionnaire significantly predicted fear of falling, indicating that reports on fear of falling are strongly associated with subjective coping styles. Repressive patients admitted significantly less fear of falling when compared to non-repressive patients as indicated by an OR of 0.2.

To our knowledge this association has not been analyzed before. It may offer a new approach to cope with fear of falling in geriatric patient with a history of falls. In addition to improving self-efficacy and reducing fear of falling by improved physical function as reported before [50], a psychological approach to develop adequate coping resources may also represent a valuable intervention for these patients.

Perception of terminal decline and report of falls

Injurious falls are prominent markers of advanced frailty. Geriatric patients admitted to hospital because of injurious falls are characterized by advanced age and multi-morbidity. Falls are often regarded by older persons as a menacing sign of terminal decline, associated with pain, loss of control, and loss of independence [32, 54]. Most of these patients are aware of their decreased health condition and a significant percentage of these patients are identified in this study as perceiving their decreased health status to be a sign of terminal decline. Injurious falls are commented frequently by older persons with regard to dying. The results confirmed our hypothesis that repressive coping strategies are associated with the perception of a terminal decline. With an odds ratio of 0.25 the most repressive patients admitted significantly less fear of terminal decline when compared to non-repressive patients.

We also expected patients with repressive coping to report less falls. Again the coping style (R/S results) was the only significant predictor of the patients' report of previous falls. Repressive patients had an odds ratio of 0.2 for non-reporting when compared to non-repressive patients, indicating a substantial denial of falls in these patients. We could not confirm the relationship of advanced age and cognitive decline to patients' reports on falls reported by others [3].

Co-morbitity/medication

In this study coping strategy (R/S) was a significant predictor for medication and comorbidity. As the number of medications and number of diagnoses was extracted from patient charts, the significant association may indicate a direct impact of repressive coping on medical therapy. As the number of diagnoses and medications is dependent on patient reports in the case history, they rely at least in part on the patient's accuracy of report. Our results show that patients with more repressive coping had less documented co-morbidity and fewer medications. Repressive patients would in these cases not only have poor coping strategies but may also receive insufficient treatment because of their underreporting of disease and associated lack of medication. Similar mechanisms have previously been discussed as underlying potential causes of restricted use of health services [55, 56].

The association between cognitive status and number of diagnosis in this study may not reflect a cognitive cause (forgetting to report diseases) but a medical fact (accumulating markers of frailty in demented persons). This association between increasing cognitive impairment and increasing co-morbidity have been reported previously [57–59].

Avoidance of physical activity

Restriction of future physical activity was the only variable not predicted by R/S. However R/S results showed a significant correlation to expected avoidance of physical activity comparable to the identified predictors (age and depression). Those patients who expected less reduction in future physical activity showed more repressive coping. As repressive patients would not admit that they would have negative consequences of falls such as reduction of physical activity, this study result is in line with the above mentioned results, where negative sequelae of falls or illness are less admitted in repressive patients.

Tinetti's performance oriented mobility assessment test (POMA) was introduced as an objectively measured control variable performed by an external rater (therapist) and was therefore not dependent on patients' subjective reports. As expected it was the only item which was not significantly associated with the coping strategy. Other independent predictor variables such as age, education, depression, cognitive status had no or only univariate predictive value for patient reports in this study.

Limitations of the study

The term denial has been used differently by different psychological theories, definitions and research approaches [60]. There has been some disagreement "as to what should or should not be subsumed under the umbrella of denial" [61] and it has been argued that a sharper definition is needed [62]. The construct of denial in references cited in this study therefore have varied. When denial was used for results of this study it relates to repressive coping as measured by the R/S score.

Conclusion

Repressive coping was the dominant predictor of patient reports and was significantly associated with the report of emotional states such as fear of falling and perception of terminal decline, expected behavior such as restriction in physical activity or severe medical events, such as injurious falls in geriatric patients with a history of falls. The number of diagnoses and medication were associated with repressive coping indicating a potential risk for inadequate medical therapy and treatment in repressive patients.

The identification of patients using repressive coping may represent a first step to further improve medical care in such patients. In a research context optimizing inadequate coping strategies may be a potential focus in future interventions targeting older persons.

Key points

- Repressive coping is associated with patient reports in geriatric patients with a history of falls.
- Patients with repressive coping might be at risk for insufficient treatment as indicated by reduced number of medication and number of diagnoses in patient charts.

Competing interests The authors declare that they do not have competing interests arising from this research.

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