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Coping with Stroke: A Prospective Comparative Cross-Cultural Research

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Abstract In the present study, the coping strategies of stroke patients were examined. An intercultural comparison between patients from Germany and Pakistan was made to investigate the impact of culture on coping processes and the need to consider these in the therapy of stroke patients. Six self-completed questionnaires were given to 53 stroke patients from Germany and 44 from Pakistan. In addition to coping processes, potential determinants on coping such as religiosity, social support and locus of control were examined. Analysis suggested both samples to be characterized by similar coping processes, but the German and Pakistani patients eventually differ in the extent they use these psychosocial determinants. This study provides modern treatment strategies for coping with stroke.

Keywords Stroke · Coping · Religiosity · Social support · Locus of control

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Background

The third-most frequent cause of death and the most frequent cause of permanent handicap in the Western industrial nations after cancer and heart illnesses is stroke, which often leads to a long dependency on term nursing care. Stroke counts economically as the most expensive illness in the industrial nations (Busse and Ziegenhagen 2002). The number of strokes is expected to double in the next 30 years. The developing countries show a difference, in that cerebrovascular diseases are still located in fifth place of the most frequent causes of death, far behind heart illnesses (e.g., Pakistan: WHO Mortality Country Fact Sheet 2006).

In light of the high prevalence of stroke and the associated individual as well as economical consequences, an optimal therapeutic support of stroke patients is of great importance (Busse and Ziegenhagen 2002). In order to be able to offer such an intervention to the patients, it is necessary to know more about specific patient skills, deficits and coping resources.

Nowadays two coping styles are mainly differentiated in coping research, namely functional and dysfunctional coping processes (Seiffge-Krenke and Shmuel 1990). It has been shown that dysfunctional coping negatively affects the rehabilitation success of stroke patients, primarily through the development of a "poststroke depression" (Morris et al. 1993b). As lethality rises (Morris et al. 1993b), quality of life decreases (Jonkmann et al. 1998; King 1996) and physical recovery is impaired (Shimoda and Robinson 1998; Chemerenski et al. 2001). Therefore, it is essential to examine the coping styles of the patients, as well as their skills and deficits, as values, attitudes and life style regarding family, religion and locus of control. This information can then be used, modified or activated in rehabilitative interventions.

Furthermore, cross-cultural research gains importance in a globalized world and multicultural societies. According to Torsch and Ma (2000), the specific culture affects the conceptions of the patients on health problems and their treatment, as well as strategies for coping. In order to provide treatments that are adjusted to the needs of patients, especially those of different cultures, it would be necessary to receive more basic information about their attitudes. There still is a great demand of research in this field, particularly in the study of coping processes of people living in the so-called "Third World."

That is why in the present study patient samples from a developed nation and a developing nation are examined about their coping strategies. The purpose of this study was to investigate the relation between coping processes and potential determinants on coping such as religiosity, social support and locus of control in two countries. It was expected that differences regarding coping styles of the patients of both cultures will be found, because the selected societies differ highly in religious and socioeconomical regards.

The following two main questions were of interest:

1. How are the influence factors religiosity, social support and locus of control linked to the coping styles of patients in both countries?
2. How can the results be used for the intercultural discourse?

Materials and Methods

The study was approved by the local ethics committee at the University of Hamburg, Germany and King Edward University of Lahore, Pakistan. Study subjects were enrolled in

a clinical protocol reviewed and approved by the institutional board. Before the beginning of the study, written informed consent was obtained from each patient.

Method

Participants and Procedure

The sample included 53 stroke patients from Germany and 44 stroke patients from Pakistan. In Germany, the questionnaires were submitted to patients in the neurological departments of the Bethesda AK Bergedorf, of the Asklepios Hospital Wandsbek, as well as of the University Medical Centre Hamburg-Eppendorf. The data acquisition in Pakistan was accomplished in the Mayo-Hospital in Lahore. Because treatment is free and therefore accessible for everyone, the Mayo-Hospital was selected. With free provision of care in hospitals of both countries, a better comparability of the samples in terms of socioeconomic status is achieved.

For the intercultural comparison, Germany and Pakistan were selected as representatives of the Central European and South Asian culture, since these do not only differ highly in religious, but also social and socioeconomical regards. While Germany ranks among the highly developed countries according to the Human Development Index (Human Development Reports 2009), Pakistan is classified as a country in a middle stage of development.

The following criteria for inclusion were specified: A first stroke had to be clinically diagnosed. The patients had to be fully conscious and orientated. Furthermore, there should be a cognitive competence adequate awareness and no Anosognosia and Aphasia. Finally, the patients had to be able to fill out the questionnaires independently in order to ensure highest possible administration objectivity.

Description of Sample

In order to ensure a comparability of both groups, they were matched regarding sociodemographic parameters such as age, sex, educational standard and occupation. The average age in the German sample was 65 years (SD = 12) and in the Pakistani sample 62 years (SD = 13). In both samples, the percentage of male patients was high with 69 % in Germany and 79 % in Pakistan. Both in the German and in the Pakistani sample, the predominant part of the patients had a comparable education in terms of a General Certificate of Secondary Education or Certificate of Secondary Education. A difference between the two samples existed concerning marital status. In the German sample, 72 % ($n = 34$) of the patients were married, 10 % ($n = 5$) were divorced or widowed, and 8 % ($n = 4$) were single. In the sample of Pakistan, only one patient was single, all others ($n = 43$, 98 %) were married.

In the German sample 59 % ($n = 30$) of the patients were retired, 27 % ($n = 14$) were employed, one patient was unemployed, and another was a worker. Six % ($n = 3$) of the patients were self-employed; 4 % ($n = 2$) were housekeepers. In the Pakistani sample, 35 % ($n = 15$) were retired, 20 % ($n = 9$) were workers, and another 20 % ($n = 9$) were housekeepers. Fourteen % ($n = 6$) were self-employed and 11 % ($n = 5$) were employed.

Matching of the sample regarding age, sex and educational status was successful, no significant differences between the German and Pakistani sample appeared in the t test for age ($p = 0.343$) and in the χ^2 test for sex ($p = 0.254$) and educational achievement

($p = 0.336$). However, regarding marital status ($p = 0.004$) and occupational activity ($p = 0.001$), significant group differences were found.

Material

The Freiburg Questionnaire of Coping with illness (FQCI SA) of Muthny (1989) is economic in its short form, permits an illness-specific implementation and due to its frequent use in Germany also opens good possibilities of comparison. The questionnaire contains 35 items and is used on patients with physically chronic illnesses and persons with after-effects of acute diseases. The questionnaire contains five scales: depressive symptoms, active coping, distracting and encouraging oneself, consoling with religion and searching for the meaning of illness, as well as denying, dissimulating, wishful thinking. In addition to these five scales, there were 12 further items in the questionnaire that measure different aspects of coping, but are not associated with a scale.

The Short Form 12 Questionnaire (SF-12) is due to its shortness economically useful and additionally offers comparative international data (Bullinger and Kirchberger 1998). The SF-12 measures the health-related quality of life of patients focusing on the dimensions physical health and mental health.

The Survey of Social Support (F-SozU) of Fydrich et al. (1991) measures the experienced social support as noticed or expected social support and covers 22 items using the five scales: emotional support, practical support, social integration, person of trust and satisfaction with social support.

The locus of control inventory for illness and health (KKG) of Lohaus and Schmitt (1989) consists of 21 items and differentiates between internal and external locus of control in three subscales with seven Items each.

The systems of belief inventory (SBI-15-R-D) of Holland et al. (1998) is an economic and valid instrument to measure religiosity. Compared to other questionnaires for the assessment of religiosity, it is especially suitable for this study, since it was specifically developed for life-threatening or chronic diseases. Its good psychometric characteristics also have been confirmed in the intercultural context, and it is neutral with regard to religious content, so that it can be used for patients of different religious backgrounds as well as non-religious persons.

The sociodemographic questionnaire contained questions on age, sex, marital status, educational achievement and occupation.

Translation Process

Apart from the SF-12 Health Survey that already had been translated into Urdu, all questionnaires were translated into Urdu for the present study and were submitted to psychometric analysis. Urdu is the official language of Pakistan and the basis of communication between regional languages of Pakistan.

Two native speakers independently translated the questionnaires from German into Urdu. Both translators were Pakistanis, who immigrated to Germany after the age of eighteen. Subsequently, both translations were compared and brought into a final Urdu form. In the next step, the problematic items, for which there was no appropriate translation in Urdu, were rephrased in a cultural-equivalent manner by Pakistani native speakers. The revised version was retranslated by a third translator into German. After a renewed revision of these items, a final version of the questionnaires was produced.

A cultural-equivalent translation, recommends, was necessary for some items. Quekelberghe (1991): The Locus of Control Inventory for Illness and Health contains two items of the scale chance, which mention fate. These are the following: "I will have physical complaints, if fate wants it" and "I owe it to my fate, if my complaints disappear." The authors of the questionnaire understand a high measure of chance as a sign of unfavorable coping as it indicates small prophylaxis and willingness to compliance. However, this definition is not applicable to Muslims, since an attributing of the recovery on fate can, according to Islamic understanding, accompany active coping. According to Islam, illness and health are in God's hand (Der Heilige Qur-àn 1989; Sura Ach-Schuara, 26:81), yet each human is obligated to engage in active efforts to solve health-related problems. A human shall not put his fate into God's hand or try to improve his or her situation by prayers, until he or she has done his or her very best. Item 3 states "It depends mainly on chance whether my complaints persist longer." The term chance is translated into Urdu with "Ittifaq" (Ahmad et al. 1999) and has to Islamic theology (Der Heilige Qur-àn 1989; Sura At-Taghabun, 64:12) likewise a religious character, since after the Islamic understanding nothing can happen without the agreement of God. In Item 7 "bad luck" is mentioned: "Physical complaints cannot not be influenced: If I am lucky, they will suddenly appear". "Bad Luck" is translated into Urdu with "Bad Kismati" (Ahmad et al. 1999), which means "bad fate." Thus, the term bad luck already implies a dependence on the will of God and has therefore a completely different meaning in Urdu than in German. Exactly the same occurs with the word luck, which emerges in item 13, "Above all it depends on luck, whether my complaints disappear, or not" and Item 19, "I think that luck and chance have a lot of influence on my physical condition." Luck is translated with "Khusch Kismati" (Ahmad et al. 1999) and means approximately "good fate." These terms also have to be understood in the Islamic context, i.e., if a Pakistani expresses a high agreement on all these items, then this would be rated as a proof for a high extent at religiosity after the preceding considerations.

These items were not formulated differently in the questionnaire; however, these circumstances were considered in the interpretation of the results.

Results

Test analyses showed that the instruments differentiated well between the samples from Germany and Pakistan, but were often not specific enough for patients from Pakistan.

The distribution of the variables of all questionnaires was checked with the Kolmogorov Smirnov test for normal distribution. The test raw values in the German sample were normally distributed, except the F-SozU, as were in the Pakistani sample the scales "denying, dissimulating, wishful thinking" of the FKV and the subscales powerful others and chance of the KKG. Therefore, following recommendation, a transformation of the form $y' = \ln(y)$ was accomplished for variables not normally distributed. Tested again with the Kolmogorov Smirnov test, the distribution did not deviated significantly from the normal distribution any longer. Subsequently, further calculations were performed with these transformed values.

In order to compute relationships between independent and dependent variables between the patients from the Pakistani and German sample, a factorial multivariate analysis was calculated with several independent variables (national affiliation, sex, education and age as covariate) and the dependent variables (depressive symptoms, active coping, distracting and encouraging oneself, consoling with religion, searching for the

meaning of illness, "denying, dissimulating, wishful thinking", social support, religiosity, internal locus of control, powerful others, chance, physical health and mental health).

As Table 1 shows, only the independent variable, national affiliation, has a highly significant effect on the dependent variables and no interactions between the independent variables were apparent. An overview of the univariate effects of the independent variable, national affiliation, on the particular tests (Table 2) shows that highly significant differences between the German and Pakistani sample occur in the scale "consoling with religion" and "searching for the meaning of illness" of the FKV, in religiosity, which is measured with the SBI, in the scale mental health of the SF-12, as well as in the scales powerful others and chance of the KKG.

Marital status and occupation, along the other sociodemographic parameters, do not affect these results (Table 3).

Explorative Factor Analysis

In order to examine how coping is associated with the factors social support, religiosity, internal and external locus of control as well as the health-related quality of life, all variables were factor analyzed by principal components with abortion below the eigenvalue criterion (eigenvalue ≥ 1), followed by varimax rotation. In both samples, four factors were extracted, which explain 72 % of the total variance in the German and 63 %

Table 1 Multivariate effects on the dependent variables

	Pillai's trace	*F*	*p*
Age	0.265	1.082	0.355
Country	0.767	9.861	<0.001
Gender	0.197	0.735	0.552
Education	1.213	1.067	0.339
Marital status	2.761	1.114	0.397
Occupation	2.791	1.154	0.359

No interaction effects were significant

Table 2 Univariate effects of the independent variable Country on the results of the questionnaires

Questionnaire scales	*F*	*p*
Country		
Depressive symptoms	1.880	0.611
Active coping	1.926	0.074
Distracting and encouraging oneself	0.078	0.891
Consoling with religion and searching for the meaning of illness	17.429	**0.002**
Denying, dissimulating, wishful thinking	1.125	0.073
Social support	3.377	0.197
Religiosity	57.876	**<0.001**
Internal locus of control	4.017	0.196
Powerful others	31.792	**<0.001**
Chance	28.384	**<0.001**
Physical health	1.094	0.343
Mental health	11.579	**0.009**

Bold values are statistically significant

Table 3 Multivariate effects on the independent variables active and depressive coping for Germany

	Pillai's trace	*F*	*p*
Age	1.681	1.052	0.503
Gender	0.617	3.223	0.147
Education	0.694	1.329	0.325
Marital status	0.120	0.806	0.569
Occupation	0.227	0.972	0.474

No interaction effects were significant

in the Pakistani sample. Altogether, the principal component analysis in both samples shows similar and well-interpretable factors, which correspond in their structure.

Determination of Coping styles

Explorative data analysis showed high inter-correlations among the following scales: depressive symptoms, active coping, distracting and encouraging oneself, consoling with religion and searching for the meaning of illness, as well as denying, dissimulating, wishful thinking of the FKV. The scales were factor analyzed in order to examine whether these five scales can be combined into clearly interpretable factors.

Principal component factor analyses with abortion below eigenvalue criterion (eigenvalue ≥ 1) and varimax rotation yielded two factors, which explained 65 % of the total variance. On the first factor, three scales loaded highly positively: active coping, distracting and encouraging oneself, consoling with religion/searching for the meaning of illness. The scales depressive symptoms and denying, dissimulating, wishful thinking load less highly up to negatively on the second factor.

This first factor can be summarized as active processing, since the variables, which load on this factor highly, imply a functional illness processing.

On the second factor, the variables depressive symptoms and denying, dissimulating, wishful thinking loaded highly positively. The scales active coping, distracting and encouraging oneself and consoling with religion/searching for the meaning of illness loaded less highly up to negatively. This factor is called depressive processing, since an illness processing in the sense of denying, dissimulating and wishful thinking characterizes depressive coping.

Using the same method as in the German sample, these two factors were also extracted in the Pakistani sample with an explanation of variance of 63 %.

Determinants of Coping

Since in the canonical correlation only interval-scaled data can be calculated, a factorial multivariate analysis of variance was performed for the German sample with the predictors on ordinal-scaled level, i.e., using the sociodemographic variables and coping as criterion.

In the German sample, none of the sociodemographic parameters such as age, gender, education, marital status and occupation had an effect on active or depressive processing (Table 4). The same computation performed for the Pakistani sample showed similar results; also here none of the sociodemographic parameters appeared to have an effect on active or depressive processing (Table 5).

Table 4 Multivariate effects on the independent variables active and depressive coping for Pakistan

	Pillai's trace	*F*	*p*
Age	1.583	1.319	0.279
Gender	0.540	4.116	0.066
Education	0.606	0.870	0.561
Marital status	0.009	0.175	0.840
Occupation	0.128	0.651	0.732

No interaction effects were significant

Table 5 Matrix structure of the canonical correlation for Germany

Canonical equation		
Variables	1	2
First set of variables		
Active coping	−.978	−.209
Depressive coping	−.252	.966
Second set of variables		
Religiosity	−0.450	−0.001
Social support	−0.474	−0.319
Internal locus of control	−0.602	−0.225
Powerful others	−0.604	−0.378
Chance	−0.627	0.691
Canonical correlation	0.694***	0.239

Explanatory notes * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

German Sample

In order to compute the contribution of the predictors' religiosity, social support as well as internal and external locus of control to the criteria active and depressive processing, the canonical correlation analysis developed by Hotelling was calculated. Table 6 shows that only the first canonical correlation became significant. On the first variable set, i.e., the criterion set of the first canonical correlation, active processing loads very highly negatively, therefore representing a marking variable. On the second variable set, i.e., the predictor, the internal and external locus of control loads negatively and correlates with active processing. These three variables are the marking variables of the predictor set. The other two predictors, religiosity and social support, correlate as well, however, lower, with active processing. Due to their correlation of approximately .45 and .47, they are indifferent variables according to Röhr (1993). Thus, all predictors appear to have influence on active processing, a high interrelation between active processing and internal and external locus of control exists.

Pakistani Sample

For the Pakistani sample, the same procedure was used. As Table 6 shows, also only the first canonical correlation is significant. Differences to the German sample are that active processing as a marking variable correlates highly with religiosity and fatalistic externality, which was to be expected, since religiosity and fatalistic externality measure a similar construct. Internal locus of control does not correlate with active processing and thus

Table 6 Matrix structure of the canonical correlation for Germany

Canonical equation		
Variables	1	2
First set of variables		
Active coping	−0.979	−0.202
Depressive coping	−0.062	0.998
Second set of variables		
Religiosity	−0.755	−0.117
Social support	0.325	−0.594
Internal locus of control	0.097	−0.907
Powerful others	−0.246	−0.333
Chance	−0.704	−0.179
Canonical correlation	0.576*	0.392

Explanatory notes * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

represent a hyperplane variable. Social externality correlates only to a low extent with active processing and is to be viewed as an indifferent variable. Social support correlates in a low and negative manner with active processing and with depressive processing. Social support is not a strong predictor active or of depressive processing, since only low correlations were found.

Discussion

Determinants of Coping

Religiosity

The most pronounced difference between the samples concerns the extent of religiosity and/or spirituality. Altogether, these results suggest that in both samples religiosity and/or spirituality exerts an influence on the type of coping as it promotes active processing, which is in line with the current state of research (Becker et al. 2006; Ai et al. 2007). In the sample of Pakistan, this effect is substantially larger in comparison with the German sample. This can be attributed to the value of religion in the Pakistani society. Here, religiosity is already promoted from childhood and integrated to the social life as well as the everyday life. Thus, a high extent of religiosity is valued by society, which again motivates the individual to deal with his/her religion. Even if religion is important in both cultures, its relative impact on the individual may differ. Carolan et al. (2000) found that in Muslim families, the daily prayers strengthen their faith and make the Islam their "way of life." In contrast, Christian religious practices are not so deeply routed in the everyday life. This culturally based interaction between social values and the individual practices may be responsible for the differences between the samples found.

This is confirmed by an intercultural study of Bochner (1976), in which he had asked four cultural groups about their extent of religiosity, among whom were Muslims from Pakistan. The study showed that religious orientation in the Pakistani sample was outstanding, uniform and common as compared to the other groups. He concluded that this confirms the frequently made observation that Islam exerts a particularly strong influence on its supporters, for example, in the comparison with Buddhism, since it is a self-confident

faith. It is interesting that Bochner (1976) had examined college graduates, who had returned to their homeland after having obtained their degree abroad. Since in the present study mainly secondary school graduates are examined, a generalizability of the results of the current study regarding the religiosity of persons of different education stages seems possible.

How the development of religious convictions of a person positively affects coping is examined in a study of Ai et al. (2007). Using structural equation modeling, they found that religiosity is affected, on the one hand, by the social support in the religious community and, on the other hand, by cognitive processes, here particularly through the development of hope. In the questionnaire SBI-15-R-D, which was used in the present study, these aspects are measured. The factor structure of the questionnaire shows that the item "I have experienced hope as result of my faith" correlates highly positively with the item "In times of illness my faith is strengthened" and thus those patients of the Pakistani sample, who emerge strengthened from their illness, are supported by the cognitive resource hope in their illness processing. Likewise the high social support in the religious community affects the active processing positively. The results of the study of Ai et al. (2007) are supported thus in the present study. The meaning of religion as a determinant of coping was also examined in the meta-analysis of Ano and Vasconselles (2005), who analyzed 49 studies on the influence of religiosity and found that religious coping positively affects rehabilitation success and life satisfaction.

Social Support

In the German sample, social support exhibited a positive middle correlation with active processing. This is expected according to the current state of research, since a high degree of social support promotes positive coping strategies and also affects its effectiveness (Holtzman et al. 2004). In the Pakistani sample, only a low, negative correlation was found. A possible reason can be identified from the study of Holtzman et al. (2004), in which social support was associated with positive and negative coping strategies. The authors explained their results by the fact that the patients cannot be supported in successful coping, if their family members do not recognize the needs of the patients. As the authors explain further active and problem-oriented coping is difficult, the patients experience negative consequences of the illness and their family members do not support them in dealing with those. In Western cultures, problem-oriented coping is associated more with positive coping outcomes than is emotion-oriented coping. Therefore, Western family members try to support the patients to exercise problem-oriented coping.

The results of the present study imply that social support in the Pakistani sample does not correspond support in Germany. In the Pakistani culture, a mentality of regret and pitying dominates in case of an illness. In the linguistic usage of Pakistan, the idiom "afsoos karna" is used for the visit of sick fellow men, which means, "to go regretting/pitying" (Ahmad et al. 1999). Thus, Pakistani family members rather pity the patients and discuss the circumstances or consequences of the incident, instead of diverting the patients from it or helping them to cope. A support for this hypothesis comes from the answer to items 16 in the FKV "pities oneself" as possible reaction to the illness. Here, the patients of the Pakistani sample have a mean of $M = 2.91$ in comparison with the German sample (German sample: $M = 1.65$). Therefore, the patients probably are encouraged also by their family members to pity themselves by being reminded of how bad their situation is. That the patients, however, nevertheless predominantly show active coping is attributable to the role of religiosity on coping, which has a very high influence on positive coping. In the

Systems of Belief Inventory, the social support in the religious community is also examined. In the Pakistani sample, social support is high and affects active coping positively. This result supports that problem-oriented social support, as it is offered by members of the religious community rather than by close family members, also affects the coping of Pakistani patients quite positively. Ellison et al. (1997) found that the positive effects of church visits on the reduction in psychological stress were due to the specific support by the community members and not the general social support. Probably family members argue more emotionally, in a way that opposes active processing.

However, also in the German sample, only a mild positive correlation was found. It is therefore very important to include the relatives in the therapy of the patients since well-meant support, if it corresponds with the needs of the patients, can help them but can stress them, if it does not fulfill patient's needs.

Locus of control According to the influence of locus of control on coping, the samples differ in the way in that in the German sample both the internality and the social and fatalistic externality were correlated mildly and positively with active coping. In the Pakistani sample, internality had no influence on active coping, while social externality had only a small influence and fatalistic externality again a high influence on active coping. The influence of fatalistic externality provides a comprehensible view of the influence of religiosity on active coping, since it affects indirectly also the religiosity of the patients. This is due to the fact that many terms such as fate, luck or bad luck are understood differently in the Islamic context. If a Pakistani expresses a high agreement with these items, it is to be seen as an indication for a high religiosity.

Intercultural Discourse

In planning treatment interventions, the differences between the German and Pakistani patients must be considered. Coping of Muslims with their illness results in particularly from religious convictions. Since the cultural orientation system of a Muslim should be considered, this important element should be respected and brought up in therapy. Also in the German sample, the religious or spiritual convictions play a role in illness processing. The study of Ayele et al. (1999) shows clearly what an important role religion plays also in the Western world as coping factor, since 86 % of hospitalized patients rely on this resource.

There have been different approaches to include religion into psychological therapy. A meta-analysis of Worthington et al. (1996) includes over 10 years of empirical research to religion, and psychotherapy shows an effectiveness of therapy with religious contents. Likewise the study of Cole and Pargament (1999) showed promising results with the integration of religion in the therapy of cancer patients. Above all, it showed that the patients view such a therapy positively.

Propst et al. (1992) examined the effectiveness of religious and non-religious therapy with depressive patients and found that with religious therapy in comparison with non-religious therapy, a significant improvement of depressiveness and improvement of the social adjustment as well as the general symptoms has arisen. This study suggested that even a purely pastoral consultation was more effective than a cognitive behavioral therapy, also after a follow-up of 3 months and 2 years. In view of these results, Pargament et al. (2004) proposed to integrate religion completely into clinical practice. The problem of such studies—beyond the methodological issues such as study design and sample size—is,

however, that only patients of one faith usually Christians are examined (McCullough 1999; Pargament et al. 2004) and results cannot be transferred to Muslims. However, the study of Bochner (1976) shows that Islam is characterized by the fact that it is strongly rooted in the everyday life of humans, for example over religious practices, so that it constitutes their identity and their behavior.

At least with Muslim patients, a therapy with religious contents would be an important approach, in order to meet the needs of these patients. While in the classical Western therapy, great importance is attached to the personal responsibility and self-control of the patient (Propst et al. 1992), it is characteristic for a Muslim to attribute eventual control of illness and health to God. This does not prevent the patients from complying with medical treatment and strive actively for the improvement of their condition, as the results of the KKG and the items on confidence into the physicians of the FKV show. Fatalistic externality in religious persons thus has a highly positive influence on active coping rather than with low compliance. Also, the few studies from clinical psychology in Asian countries showed that the interaction behavior of Asian patients in psychotherapy is different than in Western cultures. Quekelberghe (1991) mentions the examples of expressing psychological problems as psychosomatic symptoms or the frequently described passivity of Asian psychotherapy patients. In particular, in psychotherapy, there still is more research needed in order to be prepared for the specific behavior of the patients of other cultures. It also should be considered that religious beliefs can positively affect coping, and ignorance of religious coping styles can be incriminatory for the patients and be accompanied with hopelessness, as the study of Ai et al. (2003) in the investigation into Muslim refugees of the Kosovo war showed. Other studies also found connection between negative religious coping styles and a negative psychological outcome (Ano and Vasconselles 2005; Pargament et al. 2001). In particular, in such a case, it would be problematic, if these circumstances would not be regenerated in therapy. However, it is not only about being true believers. The studies of Pargament et al. (2004) and Ano and Vasconselles (2005) suggest that religious discussions and debates can also have a positive influence on the patients.

Since the social support in the Pakistani sample has a negative correlation with active processing, the role of social support should be considered in the therapy and a consultation of the family members has to be integrated into the therapy.

Generalizability

Restrictions in the generalizability of the results particularly arise from the composition of the samples. In order to ensure a comparability of the samples, these were parallelized regarding age and education. Although Bochner (1976) has shown that results concerning the impact of religion on Pakistanis can be transferred also to persons with a higher education, the generalizability of the results has to be examined in a far larger sample, in which persons of a wider age range and education levels are examined. Also, the Pakistani sample does not reflect the population of Pakistani stroke patients, since it is parallelized on the basis of the German sample, in order to ensure a comparability of the results. Actually, the stroke patients of Pakistan reflect an illiterate rate of 35 % for men and 60 % for women (WHO Country of profile 2005), i.e., there are more patients, who did not have an education.

Moreover, these results are applicable only to patients in the acute stage after a stroke. A longitudinal study is needed to examine whether the patients still show the same processing styles at different measure points over time and whether the predictors identified here have a favorable influence on adaptation and on well-being on a long-term basis. Above all, it

would be important to examine the coping styles of patients who developed a clinically relevant depression after a certain time interval. A research design with a longitudinal study over several inquiry times would permit statements about the stability of the processing styles and their consequences, also in cross-cultural comparison. A randomized controlled trial, however, is needed to examine the effect of psychological treatments with or without focus on religion, taking into account the religiosity of the patients.

Conclusion

Certainly more cross-cultural research is needed which not only compares samples in terms of difference in outcomes, but also takes account how, as examined within each cultural sample, these outcomes can be understood in light of specific determinants.

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