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Gender and the relationship between traumatic childhood experiences and pain in adulthood

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Summary

Objectives and methods: Gender differences regarding 17 childhood experiences, thought to have traumatising potential (Traumatic Childhood Experiences = TCE), and pain behaviour in adulthood were assessed using a self-administered, anonymously filled-out questionnaire. Patients were consecutively accrued in the offices of practicing physicians. Three research questions were formulated: 1) Are specific TCE reported more frequently in male and female patients with the diagnosis "Pain Associated with Psychological Factors" (PP), compared to patients with "Pain, explained by Organic Processes" (OP), and "Patients with Diseases without Pain" (OD)? 2) Do PP-men and PP-women differ in reporting TCE?; 3) Are specific TCE correlated with Pain Duration, -Intensity and Number of Operations?

Results: 1). TCE occurred more frequently in PP-men and PP-women compared to OP- and OD-patients. 2). The PP-women reported much more TCE-items than the PP-men. 3). Duration and Intensity of adult pain associated with psychological factors correlated with certain TCE-items.

Conclusions: The three research questions can be answered by "yes". In patients with pain which has been impossible to diagnose and/or has resisted conventional forms of therapy, TCE (verbal, physical and sexually abusive) have to be looked for, because they often explain adult pain. Unnecessary examinations and surgery can be avoided and therapies can be tailored for the individual patient.

Key words: childhood abuse; adult pain; gender differences

Introduction

In 1959 Engel [1] reported that adults with longstanding pain explained by psychological factors, patients with lesions who suffer more pain than most other persons with such lesions and patients who continue to suffer from pain even after healing or removal of the lesion, often had experienced a traumatic childhood. His patients were mainly women. We confirmed Engel's findings in a controlled, retrospective study [2]. A number of retrospective, controlled studies support Engel's observations [3], but none of them assessed more than a few of the individual items of traumatic childhood experiences (TCE) together, with the partial exception of Egle et al. [4].

Raphael et al. [5] used cases of early child abuse or neglect, documented in court and matched controls. They were followed into young adulthood: Physically and sexually abused and neglected individuals were not at risk for increased pain symptoms. In contrast the odds of one or more types of unexplicable pain were significantly associated with retrospective self-reports of various types of childhood victimisation. Comment: Raphael et al.'s cases were brought to court. The social interventions, which must have followed, compromise the nature of a true prospective study. The difference between abuse documented in court and in retrospective self-reports might indicate that court-documentation and self-reports tap different sources of data. Rinsza et al. [6] followed children and adolescents who had been sexually abused, for two years. Elevated rates of muscle tension and gastrointenstinal symptoms, pain included, were observed in the abused compared to control cases. Hardt and Schoon [7] reported the results of two prospective studies. They indicated that retrospective assessment of childhood adverse experiences did not produce stronger relationships

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with adult health disturbances than the prospective data. Williams [8] and Widom and Morris [9] reported in prospective studies the accuracy of the memories of adult women with respect to sexual trauma in childhood as recorded in hospital charts at the time of the abuse.

Based on this state of research, we aimed at answering the following research questions: 1) Do specific TCE occur more frequently in the male and female patients with the diagnosis "Pain Associated With Psychological Factors" (PP), defined according to DSM-IV, compared to patients with "Pain, explained overwhelmingly by Organic Processes/lesions" (OP), and "Patients with Disease of similar clinical impact but without pain (OD)?

2) Do PP-men and PP-women differ in reporting TCE?

3) Do specific TCE correlate with Pain Duration, Pain Intensity, and Number of Operations?

Methods

Questionnaire: Based on our study [2] and Drossman's questions about sexual abuse [10] we developed a self-administered questionnaire (table 1). For the questions concerning the relationship between the parents, and between the parents and the child the answer "never" was indicated by 1, "once or twice" by 2, "three to ten times" by 3, and "11 or more times" by 4. For the questions about sexal abuse 1 indicated "never", 2 "rarely" and 3 "frequently".

Collection of data: Twenty-one board certified internists and general practitioners working in their private offices in a city with 130 000 inhabitants, in cities with less than 30 000 inhabitants and in villages with less than 5000 inhabitants participated. All had been trained for one or two years by RHA, physician in chief of Internal Medicine, on his wards. There they became familiar with DSM-IV diagnoses and the definition of pain mainly due to organic disease. Each received 18 questionnaires, 3 for PP-women, 3 for PP-men, 3 for OP-women, 3 for OP-men, 3 for OD-women, and 3 for OD-men. They were instructed to present the questionnaires to consecutively seen patients who fulfilled the definitions of the three patient groups. The patients filled out the questionnaire anonymously after the physicians had explained the study and had received their written consent. The study protocol was approved by the Ethical Committee of the University of Berne, Medical School. The patients' age range was 18 to 75 years. They had to be fluent in German, without clinically judged cognitive impairment. Each physician had to add a one page structured questionnaire, indicating one of the three categories PP, OP or OD, and

Table 1

Traumatic Childhood Experiences (TCE).

Relationship between parents
1a. When you were a child did one of the parents humiliate/accuse the other severely? (1 = never, 2 = once or twice, 3 = three to ten times, 4 = 11 or more times)
1b. Did one of the parents beat the other up/kick the other?
Relationship between parent and child
2a. Did one of the parents humiliate/accuse you undeservedly?
2b. Did one of the parents beat you up/kick you?
3. Did one of the parents dominate the other, the partner submitting to this domination?
4. Did one of the parents after having beaten you up apologise, show remorse, give you presents?
5. Did the parents usually reject you and show you love only when you were sick or injured?
6. Did you experience accidents/injuries, to which you assume psychical factors have contributed?
7. When your parents were sick/unhappy, did you have the feeling to have contributed to it by your behaviour, so that you felt guilty?
8. Did your parents scold/punish you harshly when you wanted to have your will with respect to a sibling/comrade?
9. Have you lost father/mother due to illness? accident? separation? divorce? between the ages 0–5, 6–10, 11–15, 16–18?
10. Did father/mother suffer from longer lasting pains before you were 18?
11. When your parents were fighting, did you ever put yourself between them in order to calm the situation?
Sexual abuse
12a. Has anybody ever exhibited his genitals against your will? (1 = never, 2 = rarely, 3 = frequently?)
12b. Has anybody ever threatened to rape you?
12c. Has anybody ever touched your genitals against your will?
12d. Has ever anybody raped you?
Pain and behaviour in adulthood
13. For how long are your pains already lasting? (in months)
14. Where are your pains located?
15a. Have you had operations as an adult?
15b. At which site of the body was the operation performed?
15c. How many operations did you have during adult life?
16. Mark your average pain-intensity during the last month (visual analogue scale, 0 = no pain, 100 = unbearable pain).

Table 2

Traumatic Childhood Experiences in the PP-, OP- and OD-groups: Comparison between "never, and once or twice" vs "three times or more". Table body gives number of cases with >=3 TCE in group specified by column head.

Gender	item/n	PP	OP	OD	Total	p-value
Men	n	30	32	34	96	
	1a (>=3)	16	11 [1]	5 [1]	94	0.034
	3 (>=3)	14 [2]	6 [2]	4 [3]	89	0.036
	5 (>=3)	9	1 [1]	3	95	<0.001
	7 (>=3)	6 [2]	2	2	94	0.037
Women	n	50	46	34	130	
	1a (>=3)	29 [1]	10 [2]	4 [2]	125	<0.001
	1b (>=3)	12 [3]	0[12]	1 [1]	114	<0.001
	2a (>=3)	34	10	7 [1]	129	<0.001
	2b (>=3)	22 [2]	11	5 [1]	127	<0.001
	3 (>=3)	25 [2]	6 [2]	2 [1]	125	<0.001
	5 (>=3)	16	4 [4]	5	126	0.01
	6 (>=3)	9	1	1 [2]	128	<0.001
	7 (>=3)	21	4 [1]	3	129	<0.001
	8 (>=3)	25	9 [1]	8	129	0.003
	11	18 [2]	1 [1]	2	127	<0.001
	12a (rarely, frequently)	17 [1]	8	3	129	0.004
	12b (rarely, frequently)	14 [1]	2	2	129	0.002
	12c (rarely, frequently)	18 [2]	6	3 [1]	127	0.007
	12d (rarely, frequently)	15 [1]	1	0	129	<0.001

[ ] etc indicates numbers of missing data
PP = pain disorder associated with psychological factors
OP = organic pain
OD = other disease
p-values are based on Fisher's test. Only significant items are listed

giving information about other diagnoses, personal history, operations, age and gender.

A number of physicians did not manage to collect 18 subjects by the end of June 2004, the date set for terminating data collection. Together we collected 226 cases, distributed among the six groups as follows: 50 PP-women and 30 PP-men, 46 OP-women and 32 OP-men, 34 OD-women and 34 OD-men.

The accrual of the patients was consecutive. The physicians omitted patients fitting the three study-groups only in case of emergency situations in their office, accruing the next suitable patient after the situation was back to normal.

Statistics: for the comparison of the three female and the three male groups and the categorical questions Fisher's exact test was used. This test is suited for the analysis of small groups of different sizes. For the numerical data, analysis of variance was applied. For 2-group comparisons the t-test was used. To compare the relationship between childhood-experiences and adult pain Spearman's rho was used.

Because in our country many of the TCE happen to the average child once or twice during childhood the ratings "never" and "once or twice" were joined and compared with "three or more" (table 2). For items 12a-d "never" was compared with "rarely/frequently".

The uncorrected p-values of the univariate analyses are presented and no corrections were used. In studies with clear hypotheses p-corrections are not appropriate [11].

Results

Research question 1: Do specific TCE occur more often in the PP-patients?

In men, we found significant differences between PP-, OP- and OD-patients with respect to individual TCE as shown in table 2).

Item 9: There was no difference as to "loss of a parent due to disease, accident, separation or divorce" among the three groups.

Item 13: "The duration of pain in adulthood" was different between the three groups (ANOVA, F [2,92] = 3.95, p = 0.02), but not different in the groups PP and OP. Item 15b: "Numbers of operations" were not different in PP- and OP-groups. Item 16: "Pain intensity (resp. symptom intensity for OD-patients) average over the last month" differed between the three groups (ANOVA, F (2) = 31.24, p <0.001, PP 63 mm (SD = 23), OP 50 mm (SD = 26) and OD 20 mm (SD = 19) on the VAS. Mean age in the three groups differed to some extent: PP 49 years (SD = 11), OP 54 (SD = 12), OD 59 (SD = 16).

In women we found significant differences between the three women groups PP, OP and OD with respect to individual TCE as presented in

Table 3
Differences between PP-women and PP-men.

Question/n Nr	PP-women vs -men 50 / 30	p-value
2a (>=3)	34 / 2	0.008
7	21 / 6 [2)]	0.001
12d	15 / 2	0.036

p-values are based on Fisher's test, only significant items are listed. S. Also footnote table 2.

table 3. Item 9: Loss of parent due to disease, accident, separation or divorce did not differ among the groups. Item 13: "The duration of pain (resp. other symptoms in the OD-group) in adult life of the patients" was longest in the PP-group, 199 months (SD = 196), 102 (SD = 128) in the OP-group, and 69 (SD = 142), p = 0.002, (ANOVA, F (2,126) = 7.75, p <0.001). Item 15a: All of the patients had undergone surgery in their adult life. Item 15b: "The number of operations" did not differ among the three groups. Item 16: "Average pain intensity (resp. symptom intensity in the OD-group) during the last month" varied (ANOVA with F (2,125) = 44.04, p <0.001), 67 mm (SD = 22) in the PP-patients, 57 (SD = 24) in the OP-group and 19 mm (SD = 26) in the OD-group. Mean ages between the three groups were different: PP 50 years (SD = 14), OP 57 (15) and OD 62 (13).

Research question 2: Are specific TCE more frequent in PP-women than in PP-men?

Comparison between PP-women and PP-men (table 3): The women scored higher on TCE-items 2a: "parents humiliating/accusing child", 7: "parents, sick/unhappy, child feeling guilty", and 12d: "child being raped".

Research question 3: Do specific TCE correlate with pain-duration, pain-intensity and number of operations?

Correlations between TCE and adult pain: "Humiliation/accusation of the child" (item 2a) correlated with "duration of pain in adulthood" (item 13), Spearman's rho 0.27, p <0.001. "Child was punished when it tried to have its way" (item 8) correlated with "pain duration", Spearman's rho 0.29, p <0.001). 12d) "Child being raped" also correlated with "duration of adult pain", Spearman's rho 0.28, p <0.001. "One of the parents dominating, the other submissive" (item 3) correlated with "pain intensity", Spearman's rho 0.26, p <0.001.

Discussion

Research question 1: Incidence of TCE in the three groups PP, OP and OD

The TCE were self-reported. Theorectically it is possible that the higher pain-intensity in the male PP-group as compared to the OP-group influenced the former group to report more frequent TCE. The intensity-difference on the VAS of 100 mm length was 13 mm. From a clinical point of view this is a small difference, which makes a bias in reporting unlikely. In the women the difference of pain-duration between the PP- and the OP-group was 97 months. This difference is considerable. It might have introduced a report-bias toward more TCE-reporting in the PP-group. The question whether the longer pain-duration is the consequence of TCE or whether it introduced a report-bias cannot be answered definitively. It is however probable that the often unresolved conflicts in PP-patients lead to prolonged pain duration. In our study [2] pain duration was equal in the PP- and OP-patients, nevertheless the PP-patients reported more TCE than the OP-patients. The evidence that retrospective reports of serious abuse/neglect/conflict are sufficiently valid to be usable has been summarised by Hardt and Rutter [12]. According to these authors this evidence is sound as long as the prerequisite of the questions as open to reasonable operationalisation is fulfilled. This is the case in our study. The studies [8, 9] confirmed the validity of the reports by adults about the abuse experienced as children.

The demonstration of a psychobiologically plausible link between a certain TCE and the incidence of pain related to psychological factors in adulthood has been accomplished. Such links are indicated by the items 4 (parents punishing, then reacting with remorse), 5 (parents rejecting, loving sick/injured child), 6 (child, accidents/injuries, feeling psychic contribution), 7 (parents sick/unhappy, child feeling guilty), 11 (parents, fighting, child deflecting aggression onto himself), 1b (one parent beating up other parent), 3 (one parent dominating, the other submitting).

Items 5 and 6 suggest the mechanism of conditioning: sickness and injury are a precondition for being loved. Items 6, 7 and 11 suggest the neutralisation of guilt feelings in the formation of pain [1]. Item 1b (one parent is beaten up), 3 (one parent submitting) imply the identification of the later patient with the parent who suffered often from pain.

Research question 2: Frequency of TCE in PP-women and PP-men

In the comparison among the three male groups the relative frequency of TCE differed for the items 1a, 3, 5 and 7. In the comparison among the three female groups the differences were seen in many more TCE (1a, 1b, 2a, 2b, 3, 5, 6, 7, 8, 10a, 11, 12a-d). One reason could be the larger female PP-group size (n = 50) compared to the male PP-group size (n = 30). This contribution to the difference does not explain all differences, because in the direct comparison of male and female PP-

patients the difference in the items 2a, 7, and 12d reached significant values. Other reasons could be: The parent who humiliates the partner is usually the father. The victim is the mother, with whom a girl more likely identifies than with the aggressive father. The same argument might account for the beaten up or kicked victim, again the mother, and for the dominance of the father over his wife. The more frequent and intensive humiliation and beating up of girls is surprising. Its background is difficult to elucidate. Could the lesser value attributed to girls in some societies and families be a reason? Is aggressively tinted behaviour less well tolerated in girls? Item 5 (Did the parent usually reject you and show you love only when you were sick or injured?) is prominent in both genders. The explanation is open. Items 6 (Did you experience accidents/injuries, to which you assume psychical factors have contributed?) and 7 (When your parents were sick/unhappy, did you have the feeling to have contributed to it by your behaviour, so that you felt guilty?) involve guilt feelings. Are girls more empathic and dependent on a harmonious relationship of their parents and turn aggressive feelings more easily toward themselves than boys, whose nature is more in accordance with turning anger and aggression outward? The differences in items 12a-d are easy to explain. Girls are much more often victims of sexual abuse than boys. One reason for most of the differences between the genders might be a stronger tendency of men to use repression and denial with respect to remembering TCE [12] or judging certain childhood experiences not as abuse [8].

Research question 3: Do TCE correlate with pain-duration, pain-intensity and number of operations?

A strong argument for a meaningful relationship between a psychological phenomenon (TCE) and a somatic disturbance lies in its plausibility. The observations of a significant correlation between item 1a (humiliation/accusation of a parent by the spouse) and pain-duration in the child can be understood on the basis of the psychological defence/coping reaction of the child through identification with the parent, and/or guilt feelings not to be able to help the parent or to feel guilty for the fights between the parents. Item 8 (Did your parents scold/punish you harshly when you wanted to have your will with respect to a sibling/comrade?) can be interpreted as self-punishment for aggressive behaviour, and item 12d as flashback of the TCE of being raped. Item 3's (Did one of the parents dominate the other, the partner submitting to this domination?) correlation with pain-intensity can be understood as identification with the submitting parent.

Gist of the study for the practicing physician: In patients with pain, which has been impossible to diagnose and/or has resisted conventional forms of therapy, it is worthwhile exploring traumatising childhood experiences. They often explain adult pain. If this knowledge is assimilated by the physician unnecessary examinations and surgery can be avoided and therapies can be tailored for the individual patient

Practical suggestions for the physician: To mention to the patient that the application of modern diagnostic techniques has not provided a clear diagnosis. To suggest to the patient to return to the office at regular intervals, independently of the level of the pain. To observe together, under which circumstances the pain is a little bit better or gets much worse. Doing this the physician and the patient will be able to learn from the description and experience, which situations alleviate or aggravate the pain. Proceeding this way, the physician and patient will be in a better position to learn how the pain can be understood und what can be done.

In our experience this approach direct two/three out of ten patients to go into psychotherapy. Four/five patients will keep up the working alliance with their physician without pain relief, and abstain from further examinations. One or two patients will quit, change to another physician and will insist on additional examinations, diagnostic procedures and even operations.

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