

RESEARCH ARTICLE

Body Piercings and Posttraumatic Stress Disorder Symptoms in Young Adults

Eric Bui^{1,2*†}, Rachel Rodgers^{3,4}, Naomi M. Simon², Louis Jehel⁵, Christina A. Metcalf², Philippe Birmes¹ & Laurent Schmitt¹

¹Laboratoire du Stress Traumatique (EA4560), CHU de Toulouse et Université de Toulouse, Toulouse, France

²Massachusetts General Hospital, Boston, Massachusetts, United States

³Université Toulouse le Mirail, Toulouse, France

⁴Northeastern University, Boston, Massachusetts, United States

⁵Université Antilles-Guyane - CHU de Fort de France & INSERM U669, Fort-de-France, France

Abstract

Body piercing, which is prevalent in young adults, has been suggested to be associated with features usually related to posttraumatic stress disorder (PTSD) such as high-risk behaviours and psychopathological symptoms and might be motivated by a wish to deal with prior traumatic experiences. However, to date, no research has investigated the relationship between this practice and PTSD symptoms. The present research aims to investigate the possible relationship between body piercing and PTSD symptoms in French-speaking young adults. According to our results, having two or more body piercings was associated with a twofold increased risk for scoring above the cut-off score for PTSD on the PTSD checklist. Our findings suggest that two or more body piercings might serve as an identifiable marker for PTSD symptoms and may have important implications for clinical screening. Copyright © 2012 John Wiley & Sons, Ltd.

Received 29 March 2011; Revised 23 February 2012; Accepted 9 March 2012

Keywords

traumatic stress/disaster relief operations; group norms; psychological well-being

*Correspondence

Eric Bui, Center for Anxiety and Traumatic Stress Disorders, Massachusetts General Hospital & Harvard Medical School, Boston, MA02114, United States.

†Email: tebui@partners.org

Published online in Wiley Online Library (wileyonlinelibrary.com) DOI: 10.1002/smi.2427

Introduction

The term body piercing (BP) refers to the 'insertion of jewellery and other objects into artificially made openings in body parts such as, but not limited to, ears, eyebrows, nostrils, lips, tongues, navels, nipples and the genitalia of both genders' (Schultz, Karshin, & Woodiel, 2006). Piercing of the earlobes in women, however, is by definition not considered as BP either in everyday life or in scientific research. Although piercing was common in some ancient civilizations such as the Maori society, in New Zealand or among the Egyptians (Hiroa, 1949), it remained a marginal phenomenon for several centuries in Western societies. After a period of being fashionable at the royal courts in the 16th century, BP finally reappeared in the 1970s among the 'punk' culture in the United Kingdom and the 'modern primitives' in California. Over the past decade, the prevalence of BP has increased in Western societies (Stirn, Hinz, & Brahler, 2006; Suris, Jeannin, Chossis, & Muchaud, 2007), and this increased prevalence has been accompanied by a similar trend in the

number of scientific journal articles focusing on the subject. One example of this was the inclusion of the term 'body piercing' in the MeSH (Medical Subject Headings) in 2005. BP is prevalent in young adults with prevalence rates ranging from 6% (Oliveira, Matos, Martins, & Teles, 2006) to 51% (Mayers & Chiffrieller, 2008) and with an estimated average of 7–14% in the general population (Bui et al., 2010). BP has also been shown to be associated with a history of exposure to psychosocial stressors including severe injury such as severe sports injuries or the loss of a limb, the death of someone close and physical abuse/assault (Roberti, Storch, & Bravata, 2004). Furthermore, a recent review of the literature including 23 correlational studies of sample sizes ranging from 79 to 7,548 (Bui et al., 2010) also found that individuals wearing BP were reporting more high-risk behaviours including unprotected sex, Russian roulette or reckless driving and psychopathological symptoms, such as alcohol and substance use (Armstrong, Roberts, Owen, & Koch, 2004; Brooks, Woods, Knight, & Shrier, 2003), suicide attempts or

depressive symptoms (Roberts, Auinger, & Ryan, 2004). A recent study by Koch et al. confirmed this trend, reporting an association between multiple BP and substance use as well as a history of being arrested for a crime (Koch, Roberts, Armstrong, & Owen, 2010). However, these authors highlighted that the association was pronounced only among those with seven or more BPs. Posttraumatic stress disorder (PTSD), a distinctive condition resulting from exposure to the traumatic event and comprising symptoms of re-experiencing of the traumatic event, avoidance of reminders of the trauma, numbness, and increased arousal, has been consistently related to all of these psychological or behavioural disturbances (O'Hare, Shen, & Sherrer, 2010; Waldrop et al., 2007).

Finally, using a qualitative approach, Atkinson (2002) reported that tattooing, another type of body modification, has helped women deal with victimisation secondary to sexual abuse and might be a way to 'personal reclamation, self-definition and gender empowerment'. This suggests that BP might also be used as a way to deal with prior trauma by providing control over one's body. Taken together, these results suggest that BP might be associated with PTSD; however, to the best of our knowledge, this association has never been investigated before.

Body piercing has been proposed as a marker of high-risk behaviour and psychopathology, and it has been suggested that clinicians should explore these issues in individuals presenting with BP (Bui et al., 2010). Furthermore, in view of the high prevalence and medical consequences of BP, such as skin infections, it is important to explore the potential relationship with PTSD. We hypothesized that BP is also associated with PTSD symptoms and could be similarly investigated as a 'marker' of this disorder. The aim of our cross-sectional study is therefore to examine the association between PTSD symptoms and BP in young adults. Adolescence and young adulthood have been described as key periods for the acquisition of BP. We chose to focus on young adulthood as at this time parental permission for BP is presumably no longer necessary, and individuals are free to acquire them

Method

Participants and procedure

The study included 391 French-speaking participants [68.5% ($n=268$) women] who completed an online survey. Age ranged from 19 to 35 years, with mean age = 25.0 years [standard deviation (SD) = 3.8], and 165 participants (42.2%) were living alone. A majority of them (57.7%) were married, dating someone or living with a partner. Participants were invited to complete the online survey via email and social networks and were also requested to circulate the information regarding the study to their own social network. Thus, the recruitment relied on a virtual snowballing procedure. Via the

online questionnaire, all of the participants provided informed consent to participate, and no financial compensation was offered. The recruitment email stated that the study investigated the relationship between body modifications, psychological symptoms and high-risk behaviours. The study followed the ethical guidelines of the Helsinki Declaration.

Measures

In addition to demographic information, participants completed questions about the number of BPs they had with a single question ['How many body piercings do you have? (excluding earlobe piercings for women)'] as well as the self-report civilian version of the PTSD CheckList (PCL-C, Blanchard, Jones-Alexander, Buckley, & Forneris, 1996), which assesses PTSD symptoms related to a stressful event experienced in the past. The PCL-C is composed of 17 items, corresponding to each of the Diagnostic and Statistical Manual of Mental Disorders, fourth edition items for PTSD scored on a five-point Likert scale ('not at all', 'a little bit', 'moderately', 'quite a bit' and 'extremely') with regard to the prior month. Items 1–5 assess intrusive symptoms (e.g. 'Repeated, disturbing memories, thoughts or images of a stressful experience from the past?'), items 6–12 assess avoidance (e.g. 'Avoid activities or situations because they remind you of a stressful experience from the past?') and items 13–17 assess arousal (e.g. 'Feeling jumpy or easily startled?'). Total scores range from 17 to 85, with higher scores reflecting a higher level of PTSD symptoms, whereas a cut-off score of 45 (Blanchard et al., 1996) has been proposed to indicate presumed PTSD. The French version of the PCL-C has demonstrated satisfactory test-retest reliability and internal consistency (Ventureyra, Yao, Cottraux, Note, & De Mey-Guillard, 2002). In our sample, Cronbach's alpha coefficient was 0.93.

Data analysis

We conducted Spearman's correlations to examine the association between the number of self-reported BPs and PTSD symptoms. Wearing only one BP might not be a sign of psychological problems, whereas a high number of BPs might be a better marker of psychopathological symptoms (Gold, Schorzman, Murray, Downs, & Tolentino, 2005). In the second step of our analysis, we therefore split our sample on the basis of the participants reporting none, one or at least two BPs. Differences in terms of demographic variables and PTSD symptoms between the three groups of participants thus obtained (none, one or at least two BPs) were examined using chi-square tests of independence and analyses of variance with least significant difference post-hoc tests. Finally, we conducted a binary logistic regression analysis predicting 'presumed PTSD' status on the basis of PCL cut scores. All analyses were conducted using SPSS 17.0 (SPSS Inc., Chicago, IL, USA), with an alpha level of significance set at 0.05 (two-tailed).

Results

One hundred and thirteen participants (28.9%) reported having at least one BP, and 47 of them (12%) had at least two. In the whole sample, the mean PCL-C score was 33.2 (SD = 13.7), and 21% of participants ($n = 82$) scored 45 or above, which is the symptom level consistent with the proposed cut-off score for presumed PTSD.

The total number of reported BPs was significantly but modestly correlated with female gender ($r = 0.16$, $p < 0.01$) and PTSD symptoms ($r = 0.12$, $p < 0.05$) overall. As reported in Table I, there were significant differences in PCL-C total score and avoidance and a trend toward significant differences in intrusions between the three groups (none, one or at least two BPs). Post-hoc least significant difference tests revealed that participants with at least two BPs scored higher on the PCL-C intrusion and avoidance subscales as well as on the total score compared with those with no BPs ($p < 0.05$).

Although there was only a trend towards differences in prevalence of ‘presumed PTSD’ between the three groups, in a binary logistic regression analysis predicting ‘presumed PTSD’ controlling for female gender ($\text{Chi}^2(2) = 8.71$, $p < 0.013$, 79% correctly classified), the odds ratio for having ‘presumed PTSD’ for those reporting at least two BPs compared with those with none or only one BP was 2.04 (95% confidence interval = 1.05–3.96, $p < 0.05$).

Discussion

To our best knowledge, our study is the first to explore the relationship between BP, a proposed ‘marker’ of high-risk behaviour and psychopathology (Armstrong et al., 2004; Bui et al., 2010; Koch et al., 2010), and PTSD symptoms.

Prior research has reported that young adults practicing BP were more at risk for alcohol or substance abuse. For example, Armstrong et al. (2004) reported in a sample of 450 students that those practicing BP were more likely to frequently use alcohol and drugs (Armstrong et al., 2004). Similarly, depressive symptoms and suicide attempts have also been described as associated with BP (Suris et al., 2007); however, other authors have reported that individuals with body modifications differ little in terms of personality or experience with those with no body modifications (Forbes, 2001).

Our preliminary results suggest that in the same way as substance abuse (Armstrong et al., 2004; Laumann & Derick, 2006) and depressive symptoms and suicide attempts (Suris et al., 2007), PTSD symptoms also appear to be associated with BP in young adults. This finding has both clinical and research implications. In our sample, reporting more than one BP resulted in a twofold increase in the possibility of having PTSD, as measured by a PCL cut score; these results might

Table I. Characteristics of 391 young adults according to their wearing of at least two body piercings or not

	Total sample ($n = 391$)			Participants with no body piercing ($n = 278$)			Participants with one body piercing ($n = 66$)			Participants with at least two body piercings ($n = 47$)			$X^2(2)$ or $F(2, 388)$	p^a
	Mean or n	SD	or %	Mean or n	SD	or %	Mean or n	SD	or %	Mean or n	SD	or %		
Age(years)	24.97	3.83		25.03	3.91		24.45	3.24		25.4	4.08		0.929	0.396
Female gender	268	68.5%		177	66.00%		53	19.8%		38	80.9%		10.598	<0.01
Living alone	165	42.2%		122	43.88%		25	37.88%		18	38.30%		1.122	0.571
Number of body piercings	0.54	1.12		0.0	0.0		1.0	0.0		3.09	1.40		—	—
PTSD symptoms score	33.24	13.66		32.30	13.21		34.11	14.62		37.51	14.24		3.115	<0.05
Intrusion items scores	10.28	4.72		10.02	4.55		10.36	4.83		11.68	5.39		2.527	0.081
Avoidance items scores	12.81	5.73		12.46	5.47		12.95	6.60		14.7	5.66		3.145	<0.05
Arousal items scores	10.15	4.71		9.83	4.59		10.79	5.14		11.13	4.64		2.271	ns
Presumed PTSD (PCL-C > 44)	82	21%		52	18.7%		14	21.2%		16	34.00%		5.709	0.058

PTSD: posttraumatic stress disorder; SD: standard deviation; ns: not significant.

^aOne-way analysis of variance for continuous variables and Chi^2 tests for dichotomous variables two-tailed.

suggest that the presence of two or more BPs in young adults might prompt clinicians to investigate PTSD symptoms. It is worth noting that fully 34% of those with two or more BPs met the cut-off score of 45 or higher on the PCL for presumed PTSD.

Prior research suggested that BP might be motivated by the wish to restore injured self-esteem (Stirn, 2003). It has also been suggested that this practice might represent an attempt at a self-healing process (Wohlrab, Stahl, & Kappeler, 2007); for example, the deliberate choice to modify their body through BP might help sexually abused women gain a sense of mastery and reclaim a sense of control of their own body (Atkinson, 2002). Our study did not collect data about the sequence-timing of BP and the onset of trauma or PTSD symptoms so the authors cannot address which came first. Nonetheless, it is theoretically possible that two or more BPs that occur posttrauma might serve as an attempt to cope with a prior trauma or trauma-related symptoms. On the other hand, it is also possible that both BP and PTSD symptoms are more likely to occur among individuals who have higher levels of impulsivity and are drawn to high-risk behaviours. Future research would benefit from chronological assessments or longitudinal designs as well as other measures of impulsivity and risk-taking behaviours, allowing further study of the causal relationships between the factors involved. Finally, it is also possible that BP wearers are more exposed to traumatic events, and this needs further investigation.

Despite our interesting findings, some additional limitations must be acknowledged. Prior traumatic events were not assessed, and we relied on a self-report questionnaire for PTSD, thus rendering the 'presumed

PTSD' status a more clinically significant level of PTSD symptoms than a real 'PTSD diagnosis'. Although our results were statistically significant, the small effects sizes suggest that the association between PTSD and BP might be moderated by other variables, and it is not impossible that if high-risk behaviours or substance use had been accounted for in a multivariate analysis, it might have resulted in a weaker association between PTSD and BP. Our results from French-speaking young adults enrolled using snowballing procedures might not be generalizable to other cultures or age groups as it has been noted that the correlates and motivations for BP are a function of cultural background; therefore, these results warrant replication in other cultural contexts. Furthermore, our sample was predominantly women. Future research might seek to clarify gender differences in the relationship between BP and PTSD as both of these are more prevalent among women (Armstrong et al., 2004; Stein, Walker & Forde, 2000). Finally, it would also be worthwhile to explore potential differences in these relationships when considering intimate/non-intimate BP or tattoos.

Despite the limitations of the present study, our findings do suggest that two or more BPs might serve as a proposed identifiable 'marker' for PTSD symptoms and may have important implications for clinical screening. Further research is needed to understand the potential causal and chronological relationships between BP and PTSD.

Acknowledgments

This research was supported by a grant from the Traumapsy Association and the Centre Hospitalier Universitaire de Toulouse awarded to Eric Bui.

REFERENCES

- Armstrong, M.L., Roberts, A.E., Owen, D.C., & Koch, J.R. (2004). Contemporary college students and body piercing. *Journal of Adolescent Health, 35*(1), 58–61.
- Atkinson, M. (2002). Pretty in ink: Conformity, resistance, and negotiation in women's tattooing. *Sex Roles, 47*(5/6), 219–235.
- Blanchard, E.B., Jones-Alexander, J., Buckley, T.C., & Forneris, C.A. (1996). Psychometric properties of the PTSD Checklist (PCL). *Behavior Research and Therapy, 34*(8), 669–673.
- Brooks, T., Woods, E., Knight, J., & Shrier, L. (2003). Body modification and substance use in adolescents: Is there a link? *Journal of Adolescent Health, 32*(1), 44–49.
- Bui, E., Rodgers, R., Cailhol, L., Birnes, P., Chabrol, H., & Schmitt, L. (2010). Body piercing and psychopathology: A review of the literature. *Psychotherapy and Psychosomatics, 79*(2), 125–129.
- Forbes, G.B. (2001). College students with tattoos and piercings: Motives, family experiences, personality factors and perception by others. *Psychological Reports, 89*, 774–786.
- Gold, M.A., Schorzman, C.M., Murray, P.J., Downs, J., & Tolentino, G. (2005). Body piercing practices and attitudes among urban adolescents. *Journal of Adolescent Health, 36*(4), 352 e317–352 e324.
- Hiroa, T.R. (1949). *The coming of the Maori*. Wellington: Whitcombe and Tombs.
- Koch, J.R., Roberts, A.E., Armstrong, M.L. & Owen, D.C. (2010). Body art, deviance, and American college students. *The Social Science Journal, 47*, 151–161.
- Laumann, A.E., & Derick, A.J. (2006). Tattoos and body piercings in the United States: A national data set. *Journal of the American Academy of Dermatology, 55*(3), 413–421.
- Mayers, L. B., & Chiffreller, S. H. (2008). Body art (body piercing and tattooing) among undergraduate university students: "Then and now". *Journal of Adolescent Health, 42*(2), 201–203.
- O'Hare, T., Shen, C., & Sherrer, M. (2010). High-risk behaviors and drinking-to-cope as mediators of lifetime abuse and PTSD symptoms in clients with severe mental illness. *Journal of Traumatic Stress, 23*(2), 255–263.
- Oliveira, M.D., Matos, M.A., Martins, R.M., & Teles, S.A. (2006). *Tattooing and body piercing as lifestyle indicator of risk behaviors in Brazilian adolescents*. European Journal of Epidemiology.
- Roberti, J., Storch, E., & Bravata, E. (2004). Sensation seeking, exposure to psychosocial stressors, and body modifications in a college population. *Personality and Individual Differences, 37*(6), 1167–1177.
- Roberts, T.A., Auinger, P., & Ryan, S.A. (2004). Body piercing and high-risk behavior in adolescents. *Journal of Adolescent Health, 34*(3), 224–229.
- Schultz, J., Karshin, C., & Woodiel, G.K. (2006). Body art: The decision making process among college students. *American Journal of Health Studies, 21*(2), 123–127.
- Stein, M.B., Walker, J.R., & Forde, D.R. (2000). Gender differences in susceptibility to posttraumatic stress disorder. *Behaviour Research and Therapy, 38*, 619–628.
- Stirn, A. (2003). Body piercing: Medical consequences and psychological motivations. *Lancet, 361*(9364), 1205–1215.
- Stirn, A., Hinz, A., & Braehler, E. (2006). Prevalence of tattooing and body piercing in Germany and perception of health, mental disorders, and sensation seeking among tattooed and body-pierced individuals. *Journal of Psychosomatic Research, 60*(5), 531–534.

- Suris, J.C., Jeannin, A., Chossis, I., & Muchaud, P.A. (2007). Piercing amongst adolescents: Body art as a risk-marker. *Journal of Family Practice, 56*(2), 126–130.
- Ventureyra, V.A., Yao, S.N., Cottraux, J., Note, I., & De Mey-Guillard, C. (2002). The validation of the Posttraumatic Stress Disorder Checklist Scale in posttraumatic stress disorder and nonclinical subjects. *Psychotherapy and Psychosomatics, 71*(1), 47–53.
- Waldrop, A.E., Hanson, R.F., Resnick, H.S., Kilpatrick, D.G., Naugle, A.E., & Saunders, B.E. (2007). Risk factors for suicidal behavior among a national sample of adolescents: implications for prevention. *Journal of Traumatic Stress, 20*(5), 869–879.
- Wohlrab, S., Stahl, J., & Kappeler, P.M. (2007). Modifying the body: Motivations for getting tattooed and pierced. *Body Image, 4*(1), 87–95.