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Family environment, expressed emotion and adolescent self-harm: A review of conceptual, empirical, cross-cultural and clinical perspectives

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Abstract

Self-harm in young people is a complex and pervasive problem with a number of co-existing risk factors. Although research has implicated a range of family variables in understanding the onset, maintenance and prevention of adolescent self-harm, relatively little attention has been given to the expressed emotion (EE) construct. Based on a narrative review and synthesis of peer-reviewed literature up to and including 2011, this paper considers the conceptual background and empirical evidence for the role of family environment in the expression of adolescent self-harm, with a particular focus on EE. The clinical implications of this literature for working with young people and families from different cultures are also addressed. In summary, the surveyed research provides insufficient evidence for a direct causal link between family environment and adolescent self-harm, with questions raised about the temporal sequencing of measured variables, specificity of implicated family risk factors, and the nature and role of protective factors in families. Emerging evidence for an association between high EE and adolescent self-harm requires replication in well-controlled, prospective studies. There is also a lack of empirically-supported, family-based treatment modalities for adolescents who self-harm. Intervention strategies should be guided by personalised formulation, taking into account individual vulnerabilities, strengths and social contexts, as well as cultural norms for family environment.

Introduction

Self-harm, broadly defined as any act of self-injury or self-poisoning, is a major public health problem in young people (Mental Health Foundation, 2006). Although the prevalence is relatively low in early childhood, self-harm is particularly common among adolescents, with an average age of onset of 12 years (Fox & Hawton, 2004). In the UK, between 20,000 and 30,000 adolescents present to hospital annually because of self-inflicted overdoses or injuries, with some evidence for increasing rates in recent years, especially in young women (Bhugra et al., 1999; Hawton et al., 2003; O'Loughlin & Sherwood, 2005). There are also many adolescents who do not present to clinical services after a self-harm attempt. Community-based studies in the UK indicate that up to 5% of adolescent males and 17% of females have self-harmed on one or more occasions, with broadly similar rates reported in other European countries and the USA (Hawton et al., 2002; Hawton & James, 2005; Madge et al., 2008; Ross & Heath, 2002). Furthermore, young people with a history of self-harm are 10–60 times more likely to commit suicide than their peers (Brent et al., 1999; Hawton & Harriss, 2007).

Family environment

Extensive research has been conducted to identify putative risk factors for self-harm in adolescents, encompassing biological, psychiatric, psychological and environmental domains (Bridge et al., 2006; Jacobson & Gould, 2007; Portzky & van Heeringen, 2007). Given the importance of childrearing patterns on the development, expression and amelioration of psychopathology in general, it is not surprising that family context has been a particular focus of study in relation to self-harm phenomena in youth (Wagner, 1997). This literature has been informed by several conceptual paradigms, of which three will be considered here.

First, the socialization paradigm explains how parental negativity can undermine learning about emotions and their management (Hoffman, 1983).

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For example, studies have shown that the emotional lability associated with externalizing behaviours may be strongly influenced by family interactions that reinforce escalating negative affect and aversive behaviours (Beauchaine et al., 2007; Patterson et al., 1989). Researchers have since extended this work to look at the quality of communication and social problem-solving in the families of self-harming young people (Nock & Mendes, 2008; Speckens & Hawton, 2005; Tulloch et al., 1997).

Second, attachment theory points to ways in which inconsistent, emotionally unavailable parenting can influence the development and expression of self-harming behaviour. Children exposed to ineffective parental care may develop maladaptive working models of attachment, suggesting that interpersonal relationships offer inadequate support at times of stress (Bowlby, 1969). Such insecure attachment relationships may also inhibit the development of emotion regulation skills, so that selfharm serves as a means of escape from intolerable affect in the absence of more adaptive coping mechanisms. Bowlby (1980) further posited that a suicide attempt can function as a way of eliciting a caregiving response from an otherwise neglectful attachment figure.

Third, the literature on 'scapegoating' has addressed the effects of hostile and critical parenting when directed at children in order to reduce tension in another family dyad. Pfeffer (1986) postulated that the child's perceptions of a hostile parent are internalized and experienced as self-hatred. Suicidal behaviour may be enacted as a way for the child to escape from these negative beliefs, should other psychological defence mechanisms fail.

Following from these perspectives, cross-sectional studies have consistently found that the families of self-harming adolescents are characterized by significant dysfunction, most often in comparison with nonmatched clinical and community control groups (Gould et al., 2003; Wagner, 1997). There is evidence that the families of adolescent self-harmers are disorganized (Friedrich et al., 1982; Meneese & Yutrzenka, 1990), with poor cohesion (Asarnow, 1992; Asarnow et al., 1987; Brent et al., 1990; Friedrich et al., 1982; Garrison et al., 1991; Rubenstein et al., 1989) and prone to domestic violence (Cohen-Sandler et al., 1982). Poor communication (Tulloch et al., 1997), over-protectiveness (Allison et al., 1995; Martin et al., 1995) and lack of nurturance (Fotti et al., 2006; Stewart et al., 1999; Wagner et al., 1995) have also been reported. In addition, suicidal adolescents are more likely to live in nonintact families compared with non-suicidal peers (De Wilde et al., 1992; Kienhorst et al., 1990; Paluszny et al., 1991). When young people do live with their parents, there may be poor attachment (Adam, 1994;

Adam et al., 1996; Lessard & Moretti, 1998; Martin & Waite, 1994), parent-child conflict (Asarnow, 1992; Brent et al., 1990; Meneese & Yutrzenka, 1990; Rubenstein et al., 1989), hostility (Kosky et al., 1986) and rejection (Fotti et al., 2006). Moreover, family conflicts are among the most commonly identified precipitants to self-harm, based on adolescent self-report (Lowenstein, 2005). On the other hand, supportive and warm parenting may serve to buffer adolescents against suicidality (Harris & Molock, 2000; Kaplan et al., 1997; Perkins & Hartless, 2002). Other suggested familial protective factors include positive parent-child communication and feeling understood by relatives (Blum et al., 1992; Kandel et al., 1991; Martin et al., 1995; Rey Gex et al., 1998; Stewart et al., 1999; Tomori, 1999; Wagman Borowsky et al., 1999; Wagner et al., 1995).

A much smaller number of prospective studies has addressed family characteristics in relation to selfharm phenomena. In one of the first such efforts, Garrison and colleagues (1991) found that even after controlling for prior depression, poor family cohesion and adaptability significantly predicted suicidal ideation in American high school students at one-year follow-up. In a longer term study covering a period of 18 years, Johnson and colleagues (2002) assessed parenting characteristics in 659 urban American families with young children (mean age five years), and found that harsh parental punishment, low maternal educational aspirations for the youth, maternal possessiveness, maternal verbal abuse, and childhood physical and sexual abuse were all associated with increased risk for suicide attempts during late adolescence or early adulthood. These relationships remained significant after controlling for psychiatric symptoms, with interpersonal difficulties in middle adolescence appearing to mediate the associations.

However, neither of these studies attempted to control for prior suicidal symptoms, leaving open the possibility that adolescent suicidality preceded the negative family relationships, and somehow influenced the development of family dysfunction. Indeed, when previous self-harm has been taken into account by researchers, the results have been equivocal. Lewinsohn and colleagues (1994) investigated a sample of 1,508 American high school students, and found that higher levels of family support (as reported by adolescents) were negatively associated with adolescent suicide attempts taking place during a one-year follow-up interval. This association remained significant after controlling for depression, but not after adjusting for previous suicide attempts. On the other hand, Garber and colleagues (1998) demonstrated that family dysfunction significantly predicted suicidal ideation in 240 young adolescents (aged 11-12 years) at one-year follow-up. Although the association remained significant when adjusting for earlier suicidal ideation scores, the authors did not control for the severity of depression in their sample.

Whereas most research on family environment and self-harm has focused on suicidality, a longitudinal study by Yates and colleagues (2008) assessed the incidence and frequency of non-suicidal self-injury in an American school sample of 1,036 adolescents. Perceived parental criticism (PC) was rated by adolescents at annual intervals between Grades 6 and 8 (corresponding to ages 11-14 years), with scores averaged across the three time points. Although the results were non-significant for boys, higher PC scores in girls significantly predicted the incidence (but not the frequency) of self-harm by Grade 12 (ages 17-18 years). Moreover, the significant association observed in girls was partially mediated by an adolescent-completed measure of alienation towards parents. Some evidence was also provided for the specificity of this pathway, based on the finding for both sexes that adolescents' alienation did not act as a mediating variable between perceived parental criticism in early adolescence and later delinquent behaviour. However, it is possible that the observed association between parental criticism and adolescent self-injury might have been better accounted for by the effect of depression or other psychopathology, as no attempt was made to adjust for this in the analysis. Indeed, other research has identified a strong and direct relation between depression in young people and perceived alienation from parents (Starr & Davila, 2008).

The aforementioned study by Yates and colleagues (2008) is typical of most research on family environment and self-harm in relying on a single informant (i.e. the adolescent) and single method (i.e. questionnaires) for measuring both the independent and dependent variables. This practice may inflate correlations and produce spurious associations by introducing shared method variance (Bank et al., 1990). Another prospective study (Connor & Rueter, 2006) explicitly addressed this potential source of bias by selecting a direct observational method of assessing parental warmth and hostility, while measuring other variables of interest (emotional distress and suicidality) with adolescent self-report questionnaires. Structural equation modelling, taking into account all variables across six time points, revealed that adolescent emotional distress mediated the relationship between paternal warmth and adolescent suicidality. A strong negative association was also observed between maternal warmth and adolescent suicidality (based on composite ratings of suicidal ideation, planning and attempts), which remained significant after controlling for emotional distress. Contrary to prediction, however, hostility by mothers and fathers was unrelated to both emotional distress and

suicidality in adolescents. This finding suggests that the absence of protective family factors, rather than the presence of specific family pathology, may have a stronger effects on self-harm.

In summary, research has yet to clearly establish a direct causal link between family environment and adolescent self-harm. Questions remain about the temporal sequencing of family variables and selfharm phenomena, as well as the specificity of implicated family risk factors. This has led previous reviews to suggest that studies of supposed family risk factors for self-harm may in fact be addressing overlapping populations that share a number of family characteristics, such as poor parent-child attachment, criticism, hostility and lack of warmth (Diamond et al., 1996; Wagner, 1997).

Expressed emotion: Definition and measurement

In other areas of the psychiatric research literature, the issue of co-variation of family risk conditions has been extensively studied using the theoretical construct of expressed emotion (EE). EE represents an index of the affective climate in the home, traditionally measured by coding the responses of a parent or other caregiver expressed during an open-ended interview or speech sample. The standard assessment tool is the Camberwell Family Interview (CFI) (Vaughn & Leff, 1976), which rates three primary subscales: critical comments (indicating dislike or disapproval about an individual's behaviour or personality); hostility (expressed as a generalized critical attitude or rejection towards an individual); and emotional over-involvement (EOI), which is related to expressions of over-protectiveness, over-concern, self-sacrificing behaviour and exaggerated emotional responses. Ratings on these primary subscales are combined to provide an overall dichotomous categorization of 'high' or 'low' EE, with cut-off points varying according to individual studies and culture (Cheng, 2002; Parker & Hadzi-Pavlovic, 1990). In addition, the CFI can be used to derive two subscales reflecting the positive attributes of warmth (based on evidence of sympathy, affection and empathy) and positive comments, although these scales are not involved in the overall classification of EE. Summary EE ratings therefore reflect the presumed pathological aspects of family environment, rather than protective features (Bhugra & McKenzie, 2003). This is an important aspect to bear in mind, as positive aspects of family interaction tend to get ignored in this context.

Because the CFI requires a relatively lengthy interview of between one and two hours' duration, with an equivalent or greater amount of time needed for rating, a number of more economical methods have been developed for measuring EE (Hooley & Parker, 2006). Among the most widely used alternatives is the Five-Minute Speech Sample (FMSS) (Magaña et al., 1986), in which a key relative is asked to speak about a subject for five minutes, describing them as a person and their relationship together. High criticism is scored when the respondent makes a negative initial statement, provides evidence of a negative relationship with the subject, or if they make one or more critical comments during the speech sample. A 'borderline' critical rating is given when evidence of dissatisfaction is expressed in the speech sample. The EOI component is derived from similar criteria as used in the CFI: 1) emotional display during the speech sample; 2) evidence of self-sacrifice or overprotectiveness; 3) 'statement of attitude', reflecting very strong feelings of love or willingness to do anything for the subject; 4) excessive detail about birth or infancy, reflecting a preoccupation with the past; and 5) exaggerated praise, based on five or more positive remarks (Magaña-Amato, 1993). Unlike the CFI, hostility is not rated separately, in recognition of the fact that hostility is rarely present in the absence of criticism, and has relatively little value as an independent predictor of psychiatric outcome (Kuipers & Bebbington, 1988). Respondents are classified as high EE if they are rated as being high in criticism and/or EOI, and family EE is rated on the basis of the highest score from both parents. Overall FMSS-EE ratings have shown significant agreement with the CFI in adult samples (Halford, 1991; Leeb et al., 1991; Magaña et al., 1986; Moore & Kuipers, 1999), as well as in studies with children (Calam & Peters, 2006) and adolescents (Rein et al., 2006).

Expressed emotion and child and adolescent mental health

Cross-sectional studies examining relationships between youth psychopathology and parental EE have reported higher EE among parents of children with depression (Asarnow et al., 1993, 2001; Schwartz et al., 1990), obsessive-compulsive disorder (Hibbs et al., 1991), internalizing symptoms (Psychogiou et al., 2007), disorganized attachments (Jacobsen et al., 2000), disruptive behaviour (Baker et al., 2000; Hibbs et al., 1991; Psychogiou et al., 2007; Schwartz et al., 1990; Vostanis et al., 1994), attention-deficit/hyperactivity disorder (ADHD) (Peris & Hinshaw, 2003) and substance abuse (Schwartz et al., 1990). Other evidence has suggested an element of specificity in the association between EE and youth psychopathology. Asarnow and colleagues (1993) demonstrated that ratings of high EE on the FMSS were associated with depression but not with early-onset schizophrenia in a group of hospitalized 6-13-year-olds in Los Angeles, USA. The same research team (Asarnow et al., 2001) subsequently reported that depressed young people (aged 6-18 years) in a mixed inpatient and outpatient sample were significantly more likely to be living in high EE families than non-depressed peers with a diagnosis of ADHD.

Asarnow and colleagues (1994) also found that ratings of high FMSS-EE predicted recovery rates for depression at one year post-discharge. However, this finding has not been replicated with older adolescents. McCleary and Sanford (2002) assessed FMSS-EE in a Canadian sample and found that while high EE was associated with more depressive symptoms at initial assessment, EE status did not significantly predict recovery from depression at one year follow-up.

Both child and parental characteristics have been shown to predict high EE in families, suggesting that EE may be a state-dependent product of the reciprocal interactions between a parent and offspring, rather than a stable trait of parent communication. This runs counter to early constructions of EE (e.g., Leff & Vaughn, 1985), which proposed that low EE relatives were characteristically tolerant, non-intrusive and sensitive to a child's needs, while their high EE counterparts were naturally prone to intolerance, intrusiveness and dysfunctional coping strategies. Indeed, it has also been shown that recorded levels of EE can fluctuate over time. These changes may occur in the context of focused clinical interventions with families (Bernhard et al., 2006; Eisler et al., 2000), or more spontaneously over a period of months (Vostanis & Nicholls, 1995). Examining longer term stability over nine years, a Dutch team (Lenior et al., 2002) found that FMSS-EE in parents of adolescents and young adults with schizophrenia (aged 15-26 years at study entry) decreased over the first 34 months following intervention, then increased to pre-intervention levels in the subsequent years. Following from this research, more recent formulations of EE have emphasised that EE should be regarded as a bi-directional construct representing a set of relational problems between an individual and caregiver (Hooley, 2007).

Expressed emotion and self-harm

Given the prominence otherwise afforded to EE in the psychiatric literature, it is perhaps surprising that only three published studies have specifically considered EE and its relationship with self-harm in youth populations. In hypothesizing a positive association between EE and self-harm, these studies have implied that the negative and uncontrollable qualities of the affective environment in high EE families (e.g. criticism, rejection, over-protectiveness, intrusiveness, high negative affect) are such that adolescents living in them would feel increasingly hopeless, depressed and trapped over time, leading to the enactment of self-harm as a means of escape or rescue.

Allison and colleagues (1995) assessed suicidality and dimensions of EE in a sample of 307 Australian high school students. Proxy measures of EE were obtained using the Influential Relationships Questionnaire (IRQ; Kazarian & Baker, 1987), which includes three dimensions of perceived parental style: care, overprotection and criticism. However, these subscales correlate weakly with independent CFI ratings (Kazarian et al., 1990), and the conceptual similarity of the IRQ to the EE construct remains tenuous. Nevertheless, it was reported that parental criticism and overprotection were positively correlated with composite ratings of self-harm, based on yes/no responses to questions about the occurrence of suicidal ideation, planning, threats, suicide attempts and other forms of self-injury. Multiple regression analyses were also performed, exploring a proposed pathway from perceived parental style to suicidality through the partial mediation of hopelessness. It was thus demonstrated that both parental style and hopelessness made unique contributions to the composite suicidality score.

Two recent studies have investigated relationships between self-harm and family environment using more robust measures of EE. Wedig and Nock (2007) investigated FMSS-EE and its relationship to selfharm in a mixed sample of 36 adolescents, aged 12-17 years, recruited from the community and outpatient mental health clinics in Boston, USA. Information was obtained on four dimensions of adolescent self-harm (suicidal ideation, suicidal plans, suicide attempts and non-suicidal self-injury) alongside ratings of self-criticism. Analyses revealed that high overall EE and high parental criticism were significantly related to each category of self-harm, whereas high EOI was not. In addition, a moderation model was supported in which the association between parental criticism and self-harm was particularly strong among adolescents with a self-critical cognitive style. However, in common with the study by Allison and colleagues (1995), the authors did not control for depressive symptoms, nor make any attempt to establish the temporal sequencing of variables, thereby limiting the causal inferences that can be made.

Santos and colleagues (2009) investigated CFI-EE in a sample of Portuguese youths (aged 15–24 years) who had been admitted to an accident and emergency ward following an episode of self-harm. Significantly more critical and emotionally over-involved families were found among the hospital sample, as compared with a control group of non-self-harming peers recruited from the community (hospital group: 68% high criticism and 55% high EOI; control group: 3% high criticism and 0% high EOI). There was also a positive association between high EE and repetition of self-harm at nine months follow-up. In addition, a moderate correlation was found between high EE and depression, raising the possibility that EE was indirectly related to self-harm through the mediating effect of mood. However, this pathway was not directly tested using multivariate regression techniques.

Cultural dimensions

Another issue that requires clarification is the relevance of EE to self-harm across cultures. Observed variation in cross-cultural and cross-national rates of self-harm have commonly been accounted for in terms of epidemiological and sociological factors, such as the incidence of alcohol abuse and the extent of integration in societies (Lester, 2008). Particular interest has focused on the role of cultural conflict, whereby competing cultures place stress on individuals, families and communities. For example, elevated rates of self-harm in young South Asian women in the UK have been explained in terms of stress caused by discordance between traditional attitudes to social conduct and aspirations, and those more closely associated with the host country (Bhugra, 2004).

Although EE has not previously been studied in relation to cross-cultural variation in self-harm, the construct may be highly relevant to models that link culturally prescribed values to parental restrictions, family expectations, stress and self-harm. Taking the example of young British South Asians, it is conceivable that disputes about marriage and lifestyle may trigger criticism and more emotionally over-involved behaviours from key relatives, which may in turn contribute to self-harm among the highly stressed young women. However, it is important to bear in mind that the incidence of criticism and typical EOI behaviours may not by themselves be an indication of pathological risk. There is considerable evidence to suggest that normative levels of criticism and EOI vary considerably across cultural contexts (Bhugra & McKenzie, 2003; Singh et al., 2011). Thus, investigating links between EE and self-harm across cultures requires careful consideration of normative cultural data from community samples, taking into account attitudes to self-harm phenomena, family and cultural dynamics, kinship factors, as well as interactions of EOI and criticism with warmth and other potential protective variables. This may necessitate adjustment of thresholds on standardized measures of EE (Bhugra & McKenzie, 2003).

Clinical implications

There is an increasing awareness among mental health practitioners that varied clinical strategies

are needed to address self-harm, reflecting the heterogeneity of individuals who engage in such behaviour (Prinstein, 2008). This renders accurate and detailed assessment especially important, to both ascertain risk and inform the provision of appropriate therapeutic interventions. In particular, the significance of criticism, EOI and warmth must be understood within a wider cultural context before embarking upon any intervention to target potentially problematic aspects of family environment. Knowledge of normative cultural data should be accompanied by a clear understanding of the subjective experience of interpersonal stress for selfharming individuals, in order to ascertain whether the quality of family environment is having detrimental effects, regardless of absolute levels of EE.

Moreover, the dearth of empirically supported treatments for young people who self-harm requires that a flexible, formulation-driven approach be used, with the clinician drawing carefully from the limited evidence base (Brent, 2011; Burns et al., 2005; Slee et al., 2007). To date, Harrington and colleagues (1998, 2000) have conducted the only randomized controlled trial of a family intervention for adolescent self-harm, comparing routine psychiatric aftercare for self-poisoning adolescents with a brief (five-session) home-based intervention focusing on family communication and problem-solving. Non-depressed adolescents who received the family intervention reported significantly less suicidal ideation at follow-up than controls in the standard care condition. However, there was no significant advantage of family-based treatment among the subgroup of depressed self-harmers. Moreover, improvement in the nondepressed group was unrelated to changes in family functioning. This underscores the need for diverse strategies to target self-harm across different groups. Another implication is that family interventions for self-harm may need to be more comprehensive in format and content, including strategies such as strengthening positive aspects of family environment (e.g. the availability of parental support) as well as seeking to moderate negative family influences.

Conclusions

In summary, EE has been shown to play a significant role in the course of major psychiatric disorders in adult and youth populations. Only relatively recently, however, have investigators sought to extend this work to the study of self-harm. As yet, the emerging evidence for an association between adolescent selfharm and high EE has not been replicated in a wellcontrolled prospective study. It is therefore unclear whether the influence of high EE on self-harm may be independent of other hypothesized risk factors. Greater efforts are also needed to investigate the protective aspects of family environment, which have traditionally been overlooked in EE research in favour of the presumed pathological dimensions of criticism, hostility and emotional over-involvement.

The lack of attention given to EE in the self-harm literature is unexpected when taking into account the large amount of self-harm research that has otherwise addressed family variables. Furthermore, the investigation of EE may offer particular benefits towards the development of new clinical interventions for self-harm in young people, considering that treatments able to modify high EE (directly or indirectly) have been successfully applied to other clinical problems (Bernhard et al., 2006; Eisler et al., 2000; National Collaborating Centre for Mental Health, 2002). Any intervention aiming to reduce potentially damaging aspects of family environment or strengthen family-based protective factors should be informed by knowledge of cultural norms for the expression of criticism, emotional over-involvement and warmth, while taking into account putative interactions of EE with other environmental, psychological and biological risk and protective factors. More rigorous, theory-driven research is required to elucidate these relationships and thus inform clinically useful models of adolescent self-harm that can accommodate individual vulnerabilities, strengths and interpersonal contexts.

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112 D. Michelson & D. Bhugra

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114 D. Michelson & D. Bhugra

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