

## Review

## Expressed Emotion and Recurrence of Suicidal Behaviors: Review, Conceptual Model, and Recommendations

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**Abstract:** Expressed emotion (EE) refers to the criticism, hostility, and emotional over-involvement family members may display toward an individual diagnosed with a psychiatric disorder. Recent research has explored EE in relation to suicide risk, yet the association between EE and recurrence of suicidal behaviors remains understudied. The present paper provides an illustrative review of the links between EE, psychiatric symptom recurrence, and suicide risk, proposes a new conceptual framework – the Expressed Emotion-Suicidal Behavior Recurrence model (EE-SBR), and provides recommendations for future research and clinical practice within the fields of suicidology and family psychology. Researchers and clinicians are encouraged to consider the role of the family and EE as they relate to relapse prevention efforts.

**Keywords:** expressed emotion, suicidal behavior, family, suicide prevention

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Suicidal behaviors, including attempted suicide, remain a significant public health problem. Globally, suicide accounts for the deaths of nearly 800,000 people each year (WHO, 2015). Reliable cross-country data concerning the number of annual suicide attempts are not available. However, data from specific countries suggest that the number of suicide attempts greatly exceeds the number of actual suicides, making attempted suicide the single most important risk factor for suicide death (WHO, 2017). In the United States (U.S.) for instance, there are an estimated 25 nonfatal suicide attempts for every suicide death (Nock, Borges, Bromet et al., 2008; Crosby et al., 2011). Some studies report that for individuals who

have attempted suicide, there is a 70-fold increase in the likelihood of a subsequent attempt (Sanchez-Gistau et al., 2013) and nearly a 40-fold increase in the likelihood of death (Harris & Barraclough, 1997). Given empirical evidence identifying a suicide attempt as one of the most robust and salient risk factors for eventual death by suicide (Brown, Beck, Steer, & Grisham, 2000), research to prevent recurrence of suicidal behaviors is essential to global and national suicide prevention strategies.

While there are several established individual-level risk factors associated with the recurrence of suicidal behaviors, individuals rarely exist outside the influence of their families, and the precise family-level risk factors associated with suicidal behavior recurrence have been understudied. One such risk factor is expressed emotion (EE), which refers to the critical, hostile, and emotionally over-involved attitudes of family members toward a relative with a diagnosed psychiatric disorder

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(Brown, Birley, & Wing, 1972). The objectives of this paper are threefold: (1) to provide an illustrative review of the links between EE, psychiatric symptom recurrence, and suicide risk, (2) to propose the Expressed Emotion-Suicidal Behavior Recurrence (EE-SBR) conceptual model, and (3) to generate recommendations for future research and clinical practice within the field of suicide prevention.

### **Expressed Emotion: Overview and Measurement**

The key components of EE include: (1) criticism, (2) hostility, and (3) emotional over-involvement (Brown et al., 1972). According to Brown and colleagues (1972), *critical* family members demonstrate some level of negative evaluation, resentment, and/or disapproval of the individual's behavior and/or psychiatric symptoms. *Hostility* is conceptualized as not only being critical of the individual's specific behavior and/or psychiatric symptoms, but also critical of the overall individual. Thus, criticism refers to *specific* evaluations of behavior and/or symptomatology, whereas hostility refers to *generalized* evaluations of the individual. *Emotionally over-involved* (EOI) family members may be over-protective of the individual or may display extreme emotionality in response to the individual's behavior and/or psychiatric symptoms (Brown et al., 1972). Following a suicide attempt, individuals may receive critical comments from family members (e.g., "I don't understand why you would want to die"), hostile remarks (e.g., "You are a failure in every respect"), and/or emotionally over-involved reactions (e.g., "This is all my fault because I should have protected you"). Although EE is commonly measured based on a single family member, the construct is thought to reflect "disturbances in the organization, emotional climate, and transactional patterns of the entire family system" (Hooley, 2007, p. 331).

The scales that are used to classify family members as having high or low EE are those that reflect the dimensions of criticism, hostility, and emotional over-involvement. Other positive factors—including warmth and positive comments—are sometimes also included in studies assessing EE. However, the scales reflecting these positive attributes are not considered in the overall (high versus low) classification of EE (Wearden et al., 2000). This is because in the first prospective study of the link between EE and relapse, low warmth was associated with high rates of criticism, and high warmth was associated with high levels of EOI (see Brown et al., 1972). Additionally, because warmth is typically negatively correlated with criticism and positively correlated with EOI, any

positive effect of warmth is probably masked (Wearden et al., 2000). Further, little is known about the dimension of positive comments and this aspect is largely ignored (Wearden et al., 2000).

In general, researchers have measured familial EE in one of two ways: (1) perceived EE, and (2) observed EE. Perceived EE is assessed using various self-report measures of familial EE, including ratings of family member criticism (e.g., Allison, Pearce, & Martin, 1995), involvement (e.g., Flouri & Buchanan, 2002), and support (e.g., Mathew & Prabhakaran, 2013). Another self-report measure, the Level of Expressed Emotion Scale (LEE; Cole & Kazarian, 1988), is available in both a patient version and a relative version and assesses the emotional environment in the individual's most important relationships. Observed EE is assessed by coding speech samples, interviews, and/or family interactions. Common methods of measuring observed EE include the five-minute speech sample (FMSS; Magaña et al., 1986), the Camberwell Family Interview (CFI; Leff and Vaughn, 1985), and observation of family interactions (e.g., Connor & Reuter, 2006). While the CFI is the most conventional method of assessing EE, Hooley and Parker (2006) note that training in the CFI is difficult to obtain, time-consuming to administer, and labor intensive to rate. Given these concerns, other methods of assessing EE may be considered, such as the Family Attitude Scale (FAS; Kavanagh et al., 1997) and the Perceived Criticism measure (PC; Hooley & Teasdale, 1989) (See Hooley & Parker, 2006 for a more comprehensive review).

### **Links Between Expressed Emotion and Psychiatric Symptom Recurrence**

High levels of EE have been implicated in the prolonged duration and heightened risk of relapse of psychiatric illnesses including schizophrenia, depression, and eating disorders (Butzlaff & Hooley, 1998; Peris & Miklowitz, 2015). As discussed in more detail later, there is also evidence that EE is associated with non-suicidal self-injury (NSSI), suicidal ideation, and suicide attempts (e.g., Wedig & Nock, 2007). Meta-analytic evidence has demonstrated that EE has stronger effects on mood disorders than schizophrenia, with which EE is typically associated (Butzlaff & Hooley, 1998). This suggests that EE and its components may be particularly important in the understanding and treatment of mood disorders and associated phenomena, such as suicidal behavior (Hagan & Joiner, 2016). While EE may represent a potential target for intervention, its specific mechanism of action in the development and maintenance of

psychiatric conditions is unclear (Peris et al., 2015; Wearden, TARRIER, & Barrowclough, 2000). The section below will outline some theoretical explanations concerning the link between EE and psychiatric symptom recurrence.

#### *Theoretical Explanations*

According to diathesis-stress models (e.g., Hooley & Gotlib, 2000), when symptomatic individuals interact with high-EE family members, they experience an increase in their stress response, which in turn can contribute to the recurrence of symptomatology. As an illustration, individuals diagnosed with schizophrenia demonstrate significantly higher levels of non-specific skin-conductance in response to high-EE relatives as opposed to low-EE relatives (Leff & TARRIER, 1981; TARRIER, Barrowclough, Porceddu et al., 1988). Similar to how antipsychotic medications facilitate a calmer stress response by decreasing cortisol levels, interactions with low-EE family members may also lower stress and reduce the likelihood of relapse (Hooley & Gotlib, 2000).

In addition to biological pathways between EE and psychiatric symptomatology, EE can contribute to the exacerbation of symptoms via psychological mechanisms, such as negative appraisal of a family member's high-EE (Hooley & Gotlib, 2000). For example, individuals with severe information-processing deficits may be at a lower risk for symptom exacerbation and/or recurrence (Hooley & Gotlib, 2000), as they may not fully understand familial interactions (e.g., Corcoran, Mercer, & Frith, 1995; Hooley & Candela, 1999). In contrast, depressed individuals may have a greater stress response to critical comments of a family member, as they are more likely to attend to negativity in the environment than non-depressed individuals (Peckham, McHugh, & Otto, 2010; Hooley & Gotlib, 2000). Specific protective factors include a positive attentional bias and a social support network that exists outside of the high-EE family members (Hooley & Gotlib, 2000).

Building upon the diathesis-stress model, Miklowitz (2007) posits a bidirectional link between family members and individuals. With regard to bipolar disorder specifically, Miklowitz (2007) hypothesizes that the individual's unresolved psychiatric symptoms contribute to negative thoughts and emotions among family members, such as frustration and irritation. These negative thoughts and emotions influence interactions between the family member and individual, both of who react negatively to the interactions. The emotional intensity of the interactions escalates, eventually resulting in high levels of EE. The cognitions, emotions, and behaviors elicited by the individual's unresolved psychiatric symptoms contribute to high EE, high EE maintains the individual's unresolved psychiatric symptoms, and the unresolved symptoms contribute to increased negative cognitions, emotions, and behaviors. Thus, psychiatric symptomatology both contributes to and is maintained by high levels of EE.

#### ***Expressed Emotion and Suicidal Behavior Recurrence***

Multiple family factors – including parent-child relationships, maltreatment, family structure, and family history – can influence risk of suicidality (see Wagner, Silverman, & Martin, 2003). Little research has been done investigating the link between familial EE specifically and suicide risk, and what has been done varies extensively in terms of research design, target population, and operationalization and measurement of EE. As such, evidence for a relationship between EE and suicide risk has been mixed, and little is known about the causal link between EE and suicidal behavior recurrence. The following is meant to serve as an illustrative, non-exhaustive review of the literature on the associations between EE and suicidality (see Table 1 for a list of reviewed studies).

**Table 1** Empirical Investigations of Expressed Emotion and Suicidal Behaviors

Authors	Sample	Design	Results
Allison et al. (1995)	307 adolescents Age Range: 13-17 M = 15.8 (0.6) 49% female	Cross-Sectional	Perceived parental criticism, overprotection, and low caring were associated with composite ratings of suicidality
Baetens et al. (2013)	358 adolescents Age Range: 12-20 M = 16.07 (1.12)	Cross-Sectional	Perceived lack of parental emotional support had a direct effect on frequency of NSSI; perceived parental criticism had no direct effect on frequency of NSSI, but showed an indirect effect through self-criticism

Authors	Sample	Design	Results
Connor & Reuter (2006)	451 adolescents Age Range: 12-13 M = 12.6 52% female	Longitudinal	Observed parental hostility was not associated with adolescent suicidality at any follow-up; observed parental warmth was associated with lower levels of composite suicidality at follow-ups
Ellis et al. (2014)	95 adolescents with bipolar disorder Age Range: 14-17 M = 15.5 (1.4) 55% female	Cross-Sectional	Observed parental EE was associated with current suicidal ideation
Flouri & Buchanan (2002)	2560 adolescents Age Range: 14-18 52% female	Cross-Sectional	Suicide attempters perceived lower levels of parental involvement than non-attempters
Hagan & Joiner (2016)	50 college students Age Range: 18-24 M = 18.7 (1.23) 59% female	Cross-Sectional	Perceived criticism from parents and friends had a significant indirect effect on suicidal ideation and attempts through criticism's effect on feelings of thwarted belongingness
Mathew & Prabhakaran (2013)	201 adults Age Range: 20-29	Case-Control	Suicide attempters perceived greater criticism, lower emotional involvement, and lower social support than non-attempters
Muyan & Chang (2015)	288 college students Age Range: 18-40 M = 21.33 (1.98) 59% female	Cross-Sectional	Perceived parental criticism was a significant predictor of suicidal ideation beyond the effects of depression and loneliness
Santos et al. (2009)	67 young adults Age Range: 15-24 M = 19.3 (3.0) 82% female	Case-Control; Longitudinal	Observed familial EE was associated with lifetime history of parasuicide; high EE at baseline was associated with recurrence of parasuicidal behaviors follow-up
Tarrier et al. (2004)	59 adults with recent onset schizophrenia Age Range: 18-48 M = 27.2 (7.6) 24% female	Cross-Sectional	No association between multiple components of observed familial EE (criticism, hostility, over-involvement, warmth, or positive comments) and suicide attempt history; fewer positive comments were associated with current suicide ideation
Wedig & Nock (2007)	36 adolescents Age Range: 12-17 M = 15.3 (1.5) 75% female	Cross-Sectional	Observed parental criticism, but not emotional over-involvement, was associated with suicide ideation, suicide plans, suicide attempts, and NSSI

Note: M = mean age (standard deviation). EE = expressed emotion. NSSI = non-suicidal self injury.

## Method

For this illustrative review, we performed a literature search on EE in relation to suicidal behaviors using MEDLINE via PubMed, PsycINFO and Google Scholar. The search via PubMed and PsycINFO was limited by using the term "expressed emotion" and the truncated term "suicid\*" which includes suicide, suicide, attempts, suicidal behavior, suicide ideation, and other suicide-related terms. The search via Google Scholar was used in order to refine the results and to locate articles not included in MEDLINE and PsycINFO. The resulting references were screened by title, abstract, and full text for studies that examined EE

and suicidal behaviors. Only articles published before May 25, 2017 were included in the review.

## Results

Cross-sectional research supports a link between perceived familial EE and suicide risk. In one study, Australian high school students completed measures of perceived parental criticism, overprotection, and caring, as well as lifetime history of suicidality (Allison et al., 1995). Approximately half the sample reported ever having had suicidal thoughts, 14% reported having planned a suicide attempt without carrying it out, 13% reported having made suicide threats, and 9% reported having ever made a suicide attempt.

Nearly a third reported having engaged in deliberate self-harm. Overall, perceived parental criticism, overprotection, and low caring were positively correlated with composite ratings of lifetime suicidality. Results of a study conducted with over 2,500 adolescents in the United Kingdom were similar (Flouri & Buchanan, 2002). Participants completed measures of parental involvement and lifetime history of suicidality. Approximately one third of the sample reported ever having had suicidal thoughts, and 11% reported having ever made a suicide attempt. Adolescents who had made a suicide attempt perceived their parents as being less involved in their lives, even after controlling for other psychosocial and demographic variables.

In another study of adolescents, Baetens and colleagues (2013) found that perceived lack of parental emotional support had a direct effect on frequency of NSSI. These authors also found that perceived parental criticism had no direct effect on frequency of NSSI, but rather showed an indirect effect through self-criticism (Baetens et al., 2013). Importantly, although NSSI and attempted suicide represent distinct behavioral phenomena, NSSI facilitates the habituation to self-inflicted violence and pain, which may then increase one's capability of attempting suicide (Nock et al., 2006).

A study of college undergraduates has also found evidence of an indirect effect of perceived criticism on suicidal behavior (Hagan & Joiner, 2016). The authors found that perceived criticism from both parents and friends had a significant indirect effect on suicidal ideation and attempts through criticism's effect on thwarted belongingness, a construct defined as the unmet need to belong to a group of people or an individual with whom one would like to have a relationship (Van Orden et al., 2010).

Cross-sectional research in Asia and Eastern Europe has also demonstrated a link between perceived familial EE and suicidal behavior. In a case-controlled study with adults in India, Mathew and Prabhakaran (2013) compared adult suicide attempters following discharge from inpatient care with demographically similar control cases. Overall, suicide attempters perceived greater criticism, lower emotional involvement, and lower family support than controls. In multivariate analyses, perceived criticism and lack of family support continued to differentiate between attempters and controls. In a study of Turkish college students, perceived parental criticism was elucidated as a significant predictor of suicidal ideation above and beyond the effects of depression and loneliness (Muyan & Chang, 2015).

Results of studies measuring perceived EE tend to consistently support the EE-suicidality link. However, results of studies measuring observed EE are somewhat mixed, with some evidence for the association between high observed EE and suicidality (Ellis et al., 2014; Wedig & Nock, 2007), and other research finding no link between observed EE and suicidality (Tarrrier et al., 2004). In a study conducted by Wedig and Nock (2007), parental EE, measured using the FMSS (Magaña et al., 1986), was associated with frequency of adolescent suicide ideation, plans, attempts, and NSSI, even after controlling for adolescent psychological disorders. In particular, parental criticism was more strongly related to suicidality and NSSI than over-involvement. Adolescent self-criticism moderated this association, providing some support for an interactive model of EE as proposed by Miklowitz (2007). Similarly, Ellis et al. (2014) found that among adolescents with a bipolar I and II diagnosis, being in a high-EE family (as measured by the FMSS; Magaña et al., 1986) was associated with greater odds of having significant suicide ideation, even after controlling for self-reported familial cohesion and adaptability, as well as demographic, and psychiatric factors. As in Wedig and Nock's (2007) study, both critical and over-involved forms of EE were associated with suicide ideation.

Results of research conducted with adults with early onset schizophrenia are inconsistent with the adolescent-based studies described above. Tarrrier, and colleagues (2004) recruited 59 adults with recent onset of schizophrenia and their key relatives. Approximately 25% of adults with schizophrenia reported current suicide ideation, and nearly half had made at least one suicide attempt in their lifetime. The CFI (Leff & Vaughn 1985) was used to measure familial EE. In general, there was no evidence that observed criticism, hostility, over-involvement, or warmth was associated with suicide ideation. However, relatives made fewer positive comments when referring to patients with suicide ideation. In contrast to prior research (Flouri & Buchanan, 2002; Mathew & Prabhakaran, 2013) no component of observed EE was significantly associated with suicide attempt history.

All studies reviewed thus far have used cross-sectional designs, the majority of which support a link between familial EE and suicide risk. Results of longitudinal studies are less consistent. Connor and Reuter (2006) report on the Iowa Youth and Families Project, conducted with 401 adolescents and their families. Parental EE was assessed at the beginning of the study via coding individual, dyadic, and family group interactions for warmth

and hostility. A composite rating of adolescent suicidality – including ideation, planning, and attempts – was measured at three follow-up points. Observed parental hostility was not associated with adolescent suicidality at any follow-up; however, observed parental warmth was associated with subsequent lower levels of suicidality. Consistent with diathesis-stress models (e.g., Hooley & Gotlib, 2000), lower levels of adolescent emotional distress mediated the paternal warmth-suicidality link, but not the maternal warmth-suicidality link.

A second longitudinal study included 34 parasuicidal young adults who had visited a hospital emergency room following parasuicide—defined as “a non-fatal act in which there is self-harm or deliberate excessive ingestion of a substance” (Santos et al., 2009; p. 358)—and 33 demographically similar controls. Familial EE was measured using the CFI (Leff & Vaughn, 1985). Overall, a greater proportion of parasuicidal individuals were more likely to come from high-EE families than control cases (74% vs. 6%). High EE was most commonly characterized by over-involvement and criticism rather than hostility. Among individuals with repeated parasuicide nine months later, nearly all came from high-EE families.

#### *Issues Concerning the Examination of Expressed Emotion and Need for Additional Research*

The research reviewed above provides preliminary evidence of a relationship between familial EE and suicide risk. Few studies have measured and examined all three components of EE, including criticism, hostility, and emotional over-involvement (for an exception, see TARRIER et al., 2004); nonetheless, research has shown that perceived and observed criticism (Allison et al., 1995; Wedig & Nock, 2007), perceived overprotectiveness (Allison et al., 1995), and composite ratings of observed criticism and over-involvement (Ellis et al., 2014; Santos et al., 2009) are associated with greater suicide risk. Studies of EE and suicidality have also identified protective factors including perceived parental involvement (Flouri & Buchanan, 2002), caring (Allison et al., 1995), family support (Mathew & Prabhakaran, 2013), and parental warmth (Connor & Reuter, 2006). Notably, of the two longitudinal studies reviewed above, one found evidence linking high composite familial EE – combining criticism, hostility, and over-involvement – with repeat parasuicide (Santos et al., 2009), and the other found no link between parental hostility and repeat suicide risk (Connor & Reuter, 2006). One reviewed study measured and tested all aspects of

EE found no link between criticism, hostility, or emotional over-involvement and suicide ideation or behavior (TARRIER et al., 2004).

The evidence for the association between high EE and suicidal behavior recurrence is growing, but additional research is needed to determine the nature and directionality of this relationship. In the section below, we propose a systematic framework to further understand and explore the association between EE and suicidal behavior recurrence.

#### **Expressed Emotion: Suicidal Behavior Recurrence (EE-SBR)**

##### *Overview and Rationale for the EE-SBR Model*

As noted earlier, high EE is a reliable predictor of symptom recurrence for a number of psychiatric disorders (e.g., Butzlaff & Hooley, 1998), and has been associated with suicidal behavior recurrence (Santos et al., 2009). However, not all individuals returning to high-EE environments experience a recurrence of their earlier symptomatology. Limited research has addressed why some individuals will have a recurrence of symptoms when returning to high EE environments and others will not. One explanation is related to the presence of certain biopsychosocial vulnerabilities that make some individuals more susceptible to symptom recurrence than others (Hooley & Gotlib, 2000). Another explanation may be related to the level of psychiatric functioning of the individual at the time of exposure to high EE.

Based on our clinical experiences and observations of individuals following a suicide attempt, we believe that individuals who attempt suicide are especially vulnerable to family environments with high EE. Regardless of psychiatric diagnosis, individuals who have inflicted self-harm with the intent to die tend to lack the ability to problem-solve effectively in the moment, and view suicide as the *only* option. Following a suicide attempt, whether psychiatrically hospitalized or not, an individual is in great need of social support, which can subsequently serve as an important protective factor (e.g., Mathew & Prabhakaran, 2013). Family members may demonstrate one or more elements of high EE, either due to intense emotions elicited by the suicide attempt (e.g., shock, anxiety, anger), cognitive attributions of blame, prior family dynamics, and/or a host of other possible reasons. The high EE may then be associated with the recurrence of similar suicidal behaviors in the days to come. Based on our review of the empirical literature and our clinical experiences, we present a conceptual model that hypothesizes ways in which high EE becomes associated with the recurrence of suicidal behaviors.

*Structural Family Therapy as a Framework*

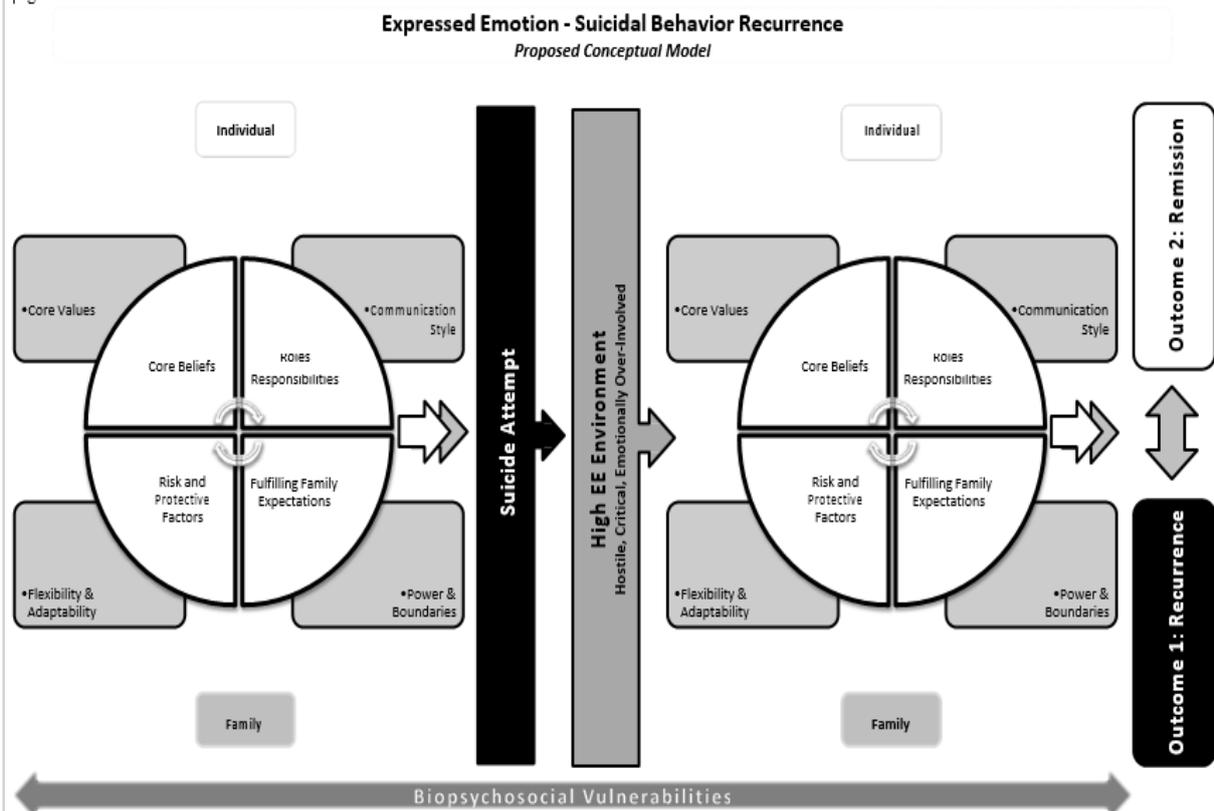
The EE-SBR model is in part adapted from structural family therapy (Kaslow, Dausch, & Celano, 2003; Navarre, 1998). Within the framework of structural family therapy, a family unit is described as being ‘healthy’ or ‘dysfunctional’ based upon its ability to adapt to various stressors. A healthy family is considered well defined, but flexible, and able to accommodate change. A healthy family is also cohesive in nature, but allows for individual growth and autonomy. On the contrary, a dysfunctional family may fail to adapt to stress in an appropriate manner, resulting in boundary, alignment, and power issues. Dysfunction may also be the result of rigid family interaction patterns during times of stress or developmental changes. Within the model of family functioning upon which structural family therapy is based, family dynamics are viewed as the context in which individual symptoms develop, and how symptomatology is maintained or exacerbated over time.

*Proposed Conceptual Model*

Based on our review of the empirical literature described above and our clinical experiences, we

propose the EE-SBR model to systematically outline individual and familial factors as one facet of biopsychosocial vulnerability that, in combination with a high-EE family environment, may contribute specifically to the recurrence of suicidal behaviors. The specific suicidal behavior that has been selected for the models depiction is a suicide attempt. The EE-SBR model is in its infancy. One primary objective of this manuscript is to offer the EE-SBR model as a framework for use by other researchers and clinicians during their exploration of familial EE and recurrence of suicidal behaviors. Modifications to the model are encouraged as new scientific evidence emerges. In the EE-SBR model (see Figure 1), the *individual* is a term used to refer to the person in the family who has recently attempted suicide. The *family* refers to one or more family members with whom the individual resides following the suicide attempt. The interaction between the individual and the family is illustrated at two time points: (1) pre-suicide attempt, and (2) post-suicide attempt. There are two possible outcomes: (1) remission of suicidal behavior, or (2) recurrence of suicidal behavior.

Figure 1.



Within the EE-SBR model, the individual’s contribution to the family interaction is based on his or her (1) personal core beliefs, (2) understanding of familial roles and responsibilities,

(3) personal risk and protective factors, as well as (4) perceived fulfillment of expectations. The individual has to function within the parameters of the family’s structure; therefore, there is a

continual cycle of interactions between the individual and the family. Familial factors include (1) power and boundaries, (2) established communication style, (3) family core values, and (4) flexibility and adaptability during stress and change. At the time of pre-suicide attempt, the individual and the family have unique biopsychosocial vulnerabilities that may contribute to suicide risk and these span the period of post suicide-attempt as well. Once a suicide attempt occurs, it may activate a high-EE environment such that hostility, criticism, and/or emotional over-involvement become pronounced and directly contribute to the pre-existing cyclical interaction between the individual and his or her family. Negative interactions between the individual and a high-EE family member may exacerbate unresolved symptoms relating to the previous suicide attempt, possibly resulting in a repeat attempt.

As previously discussed, however, not all individuals returning to a high EE environment will have symptom recurrence. Thus, the EE-SBR model demonstrates how an individual's path may lead to either symptom recurrence or symptom remission through individual vulnerabilities and protective factors related to the high-EE environment. The vulnerabilities likely to lead to the recurrence of symptoms are hypothesized to include an attentional bias towards negative events, cognitive distortions, physiological arousal to adverse stimuli, and a history of family trauma. The protective factors leading to remission are hypothesized to include a positive events attentional bias, ability for cognitive reframing, social support outside of the high EE environment, and medical adherence.

## Discussion

Given that a history of suicide attempt is one of the most clinically significant risk factors for eventual death by suicide (Brown et al., 2000; Franklin et al., 2007; Goldston et al., 1999, Harris & Barraclough, 1997; WHO, 2017), it is crucial that individuals with a history of attempt be targeted for suicide prevention strategies specifically to prevent recurrence of similar behaviors. A number of biopsychosocial factors – including EE – may contribute to the recurrence of suicidal behaviors. When family members of a suicidal individual express high EE, including criticism, hostility, and over-involvement (Brown et al., 1972), the individual's suicide-risk symptomatology may be exacerbated, eventually moving the individual forward along a trajectory to suicidal behavior recurrence. Thus far, we have reviewed the literature on EE and suicide risk, emphasized the

importance of considering EE in the context of suicide behavior recurrence, and proposed a conceptual model to advance that understanding. We now provide suggestions for future research and clinical practice.

## Research and Clinical Recommendations

Research in the area of EE and recurrence of suicidal behaviors is in its infancy – few studies have been conducted to test the EE-suicidality link, and even fewer have tested this link using longitudinal, case-controlled designs. An exception to this is a case-controlled study of youth with self-harming behaviors conducted by Santos and colleagues (2009). The authors found that youth with self-harm behaviors were significantly more likely to have more critical and emotionally over-involved families compared with a control group of non-self-harming peers. We have proposed the EE-SBR model to provide a framework for future research in this important area of overlap between the fields of suicidology and family psychology. Future research should investigate the predictive ability of EE in the recurrence of suicidal behaviors among adults, adolescents, and children, preferably from different cultures, specifically targeting individuals with a recent suicide attempt. Further, researchers should aim to best capture the unique contributions of each component of EE – criticism, hostility, and emotional over-involvement – and develop improved assessment strategies (Hooley & Parker, 2006).

None of the recommendations listed above would provide clinically relevant data unless investigators can use their understanding of EE in the development and empirical validation of novel family-based interventions for at-risk suicidal patients. Indeed, providing family members with psychoeducation, interpersonal skills training, and social support has been found to reduce criticism and emotional over-involvement (Rajalin, Wickholm-Pethrus, Hursti, et al., 2009). Family- and couples-oriented interventions have also demonstrated symptom improvement in a number of disorders, such as depression (e.g., Bodenmann, Plancherel, Beach et al., 2008), bipolar disorder (e.g., Miklowitz, George, Richards et al., 2003), alcoholism (e.g., O'Farrell, Hooley, Fals-Stewart et al., 1998), schizophrenia (for a review, see Penn & Mueser, 1996), and eating disorders (e.g., Eisler, Simic, Russell et al., 2007). By using the EE-SBR model as a framework for conceptualizing family-based therapies, targeted interventions can break the cycle of negative interactions between high-EE family members and at-risk suicidal individuals. Changes in the quality of interactions between

family members may prevent symptom exacerbation and subsequent suicidal behaviors. Clinicians are encouraged to complete a thorough assessment of suicide risk by using well-standardized measures, such as the Columbia Suicide Severity Rating Scale (Posner, Brown, Stanley et al., 2011), and in addition, to pay particular attention to family dynamics. More specifically, providers need to understand: (1) how the family is responding to the suicidal crisis (e.g., suicide attempt), (2) how these familial responses are being perceived and processed by the suicidal individual, and (3) how the perceptions of the suicidal individual are contributing to future risk of suicidal behavior recurrence.

Clinically, we know that social support is a protective factor for suicide. Joiner and colleagues (Joiner, 2005; Van Orden, Witte, Cukrowicz et al., 2010) have identified thwarted belongingness as an important risk factor in suicidal behavior. One of the best sources of social support can be a healthy family environment. Of course, in contrast, one of the worst sources of social support can be a dysfunctional family environment. Acting on one's suicidal thoughts is never an easy decision. Consider an individual who attempts suicide and survives the attempt – what should she or he convey to the family members following the attempt? What are recommended strategies for family members in how to best respond to a suicidal person following a suicidal crisis? These are the challenges that many clinicians are faced with. Therefore, clinicians are strongly urged to provide evidence-based targeted interventions (e.g., Brown, Ten Have, Henriques et al., 2005; Ghahramanlou-Holloway, Neely, & Tucker, 2014; Jobes, 2006; Linehan, Comtois, Murray et al., 2006; Stanley & Brown, 2012) to their suicidal patients, and in the context of delivery, always consider the role of the family and EE in relapse prevention. By extending our treatment of suicidal patients to include their family and social support networks, we can reduce the recurrence of suicidal behavior and help individuals and their families live healthy lives.

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