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# **The Associations Between Children's and Adolescents' Suicidal and Self-Harming Behaviours, and Related Behaviours Within Their Social Networks: A Systematic Review**

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## **Abstract**

**Objectives:** Social influences – including the suicidal and self-harming behaviours of others – have been highlighted as a risk factor for suicidal and self-harming behaviour in young people, but synthesis of the evidence is lacking. **Methods:** A systematic review of 86 relevant papers was conducted. **Results:** Considerable published evidence was obtained for positive associations between young people's suicidal and self-harming behaviour and that of people they know, with those reporting knowing people who had engaged in suicidal or self-harming behaviours more

likely to report engaging in similar behaviours themselves. **Conclusion:** Findings are discussed in relation to a number of methodological and measurement issues – including the role of normative perceptions – and implications for the prevention of suicidal and self-harming behaviour are considered.

**Keywords:** normative perception, self-harm, social influence, social norms, suicide

A wide range of terminology has been used to attempt to define suicidal and self-harming behaviour (SSHB), both in research and in practice, and given that individuals reportedly engage in SSHB for myriad reasons (Laye-Gindhu & Schonert-Reichl, 2005; Nock, 2009; Scoliers et al., 2008), no one definition is universally accepted as all-encompassing. Furthermore, the utility of focusing on intention and separating out non-suicidal from suicidal self-harm has been debated (e.g. Kapur, Cooper, O'Connor, & Hawton, 2013; O'Carroll et al., 1996; Silverman, Berman, Sanddal, O'Carroll, & Joiner, 2007), particularly given the apparent uncertainty and/or ambivalence surrounding intention and motivation for some individuals (Dorpat & Boswell, 1963; Henriques, Wenzel, Brown, & Beck, 2005). For the purposes of the current paper, any act of self-injury – regardless of intention or motivation – is included under the umbrella term SSHB, in an attempt to capture all relevant behaviours.

SSHB is a major public health concern, representing the tenth leading cause of death worldwide, and constituting about 1.5% of the international disease burden (Hawton & Van Heeringen, 2009). As such, the implementation of evidence-based prevention, intervention and postvention strategies has become a priority, internationally (Hadlaczky, Wasserman, Hoven, Mandell, & Wasserman, 2011). Various social factors have been implicated in increasing risk of engagement in SSHB, including socioeconomic deprivation (Hawton, Harriss, Hodder, Simkin, & Gunnell, 2001), unemployment (Kposowa, 2001), and social isolation (Bearman & Moody, 2004),

whilst others appear to reduce risk; such as social support (Greening & Stoppelbein, 2002). In particular, the impact of the SSHB of other people on an individual's own behaviour, and the co-occurrence of such behaviours across groups of individuals has attracted much interest. Evidence has repeatedly been found for clusters of SSHB in time and space (e.g., Haw, Hawton, Niedzwiedz, & Platt, 2013), an increase in suicide attempts has frequently been recorded following widespread reporting of high-profile suicides (e.g., Niederkrotenthaler et al., 2012), and a contagion-like spread of such behaviours within shared environments has often been observed (e.g., Brent et al., 1989).

A number of theoretical models of suicidal behaviour and their supporting literature have highlighted the importance of social factors in the development and trajectory of suicidal behaviour. For example, in Williams' (2001) Cry of Pain model, social support represents a rescue factor which may prevent feelings of defeat and entrapment from developing into suicidal behaviour. In addition, in Joiner's (2005) Interpersonal Theory, feelings of thwarted belongingness and perceived burdensomeness – both arguably concepts with social bases – interact with acquired capability to prompt suicidal behaviour. More recently, O'Connor's (2011) Integrated Motivational-Volitional (IMV) model posits that social factors may be important at every stage of the pathway from suicidal thought to behaviour. An individual's biopsychosocial context determines their pre-motivational phase; poor social problem solving may represent a Threat-to-Self Moderator, and thwarted belongingness, burdensomeness and a lack of social support may represent Motivational Moderators. The presence of each of these may result in suicidal ideation or intention, but it is only when Volitional Moderators are also present, such as social learning or perceived social norms, that behavioural enactment will take place. Empirical evidence of the importance of social factors in differentiating between thought and action comes from a study by

O'Connor, Rasmussen, and Hawton (2012), who showed that self-harm enactors differed from ideators and controls on perceived descriptive norms and reported exposure to self-harm in family or friends.

SSHB is particularly prevalent in young people (De Leo & Heller, 2004; O'Loughlin & Sherwood, 2005; Owens, Horrocks, & House, 2002), and perhaps due to their susceptibility to social influence in general (Brechwald & Prinstein, 2011), evidence suggests that the effects of social factors on the SSHB of young people may be particularly powerful (e.g., Haw et al., 2013; King & Merchant, 2008; Phillips & Cartensen, 1986). This may be compounded by the fact that those individuals who are most prone to social influence may be at an already heightened risk of engaging in damaging behaviours (Allen, Porter, & McFarland, 2006), and it has been repeatedly shown that young people's engagement in risky or health-damaging behaviours in particular may be vulnerable to social influence (e.g., Eisenberg, Neumark-Sztainer, Story, & Perry, 2005; Perkins, Perkins, & Craig, 2010; Van Der Vorst, Engels, Meeus, & Deković, 2006). This may be as a result of the improved self-status afforded by engaging in certain risky behaviours (Brechwald & Prinstein, 2011), and evidence has shown that self-harming behaviours are perceived as high-status behaviours in early adolescence (Heilbron & Prinstein, 2010).

The evidence for the co-occurrence of SSHB across groups and the apparent transmission of SSHB between individuals, together with the increased risk of SSHB in young people and the heightened susceptibility of young people to social influence (particularly with regard to status-gaining behaviours), argues for the importance of gaining a better understanding of the relationship between young people's SSHB and that of other people. To date, no comprehensive synthesis of the research in this area has been conducted, and findings appear somewhat inconsistent. Moreover, it is not always clear whether individuals involved in such research are explicitly aware

of the behaviours of others, or whether knowledge is assumed based on presence in a particular geographic location or attendance at a particular school, for example. Such considerations may be important according to research from the field of social norms, which consistently indicates that individuals' perceptions of the social norms surrounding a particular behaviour – regardless of the accuracy of those perceptions – are more predictive of their own engagement in that behaviour than are actual norms (e.g., Perkins, 2007). Consideration of whether or not the relevant others are personally known to the individual (and if so, in what capacity) is also often omitted from articles, making it difficult to gauge whether accurate knowledge is likely, or to determine whether perceptions of unknown others' behaviour is sufficient to influence one's own. A systematic search and comprehensive review of the available literature, with specific inclusion criteria which would enable synthesis of relevant findings to address these inconsistencies, was therefore conducted.

## **AIMS OF REVIEW**

The primary aim of the current review was to investigate whether relationships exist between child/adolescent SSHB and the SSHB of people they know. Having examined this, the review also aimed to identify whether perceptions of others' SSHB – and their potential inaccuracies and biases – are considered in the literature with regard to associations with child/adolescent SSHB, or whether accurate knowledge of the behaviour of others is routinely assumed. Finally, the review aimed to explore whether any specific literature exists around the perceived social norms of SSHB (and their relationship with child/adolescent behaviour and attitudes).

## **METHODS**

### **Information Sources and Search Strategy**

Web of Science, PsycInfo, PubMed and Embase (all years) were searched in February 2012, using the following keywords: “self harm social norm”, “self-harm social norm”, “self injury social norm”, “self-injury social norm”, “suicid\* social norm”, “parasuicid\* social norm”, “self harm social influence”, “self-harm social influence”, “self injury social influence”, “self-injury social influence”, “suicid\* social influence”, “parasuicid\* social influence”, “self harm friend”, “self-harm friend”, “self injury friend”, “self-injury friend”, “suicid\* friend”, “parasuicid\* friend”, “self harm family”, “self-harm family”, “self-injury family”, “self injury family”, “suicid\* family”, “parasuicid\* family”, “self harm peer”, “self-harm peer”, “self injury peer”, “self-injury peer”, “suicid\* peer”, “parasuicid\* peer”, “self harm contagion”, “self-harm contagion”, “self injury contagion”, “self-injury contagion”, “suicid\* contagion”, “parasuicid\* contagion” and “Werther effect”. Identical searches were carried out in November 2013 and July 2015 to check for updates. Reference sections of relevant papers were also hand-searched, and additional papers identified through this and other means (e.g. personal communication) were included.

### **Eligibility Criteria**

Papers were included in the current review if: (i) they were original, published, peer-reviewed journal articles; (ii) they were written in English; (iii) they reported the investigation of associations between an individual’s SSHB and that of (specific) people they know<sup>1</sup>, or any

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<sup>1</sup> Papers which failed to define the nature of the young person’s relationship with the reference group were excluded (e.g., “people you know”), as were those in which reference groups were not necessarily present in the young person’s social network (e.g., celebrities or fictional characters),

influence of others' SSHB on one's own SSHB; (iv) they focused on a child and/or adolescent (up to 19 years old) population<sup>2</sup>; and (v) a reasonable standard of inferential statistical analyses was conducted or the paper reported on qualitative data. The study selection process is illustrated in **Figure 1**.

## RESULTS

### Study Characteristics

Eighty-six relevant papers were identified for inclusion in the current review (full details of reviewed studies can be found in **Tables 1–4**). The SSHBs examined (in terms of both children's/adolescents' behaviour and that of the people they know) ranged from thoughts of self-harm, through self-harm, suicide plans, threats and attempts, to death by suicide, as well as some cumulative scales of unspecified "suicidal behaviour". The reference group examined (i.e. the "others" to which studies referred) also varied widely, including such groups as friends, peers, parents, siblings and other relatives. Research was conducted within a range of populations in terms of age (range = 5–19 years) and location (23 different countries) and in a variety of settings

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in order to minimise the likelihood that the data reflected guesswork or more general perception of overall rates.

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<sup>2</sup> In accordance with World Health Organisation (2013) and UNICEF (2011) definitions of adolescence.



(including schools, the community, inpatient and outpatient mental health services, emergency departments and other healthcare settings).

A similarly diverse range of methods and analyses were employed. Measures of both child/adolescent SSHB and that of their networks were obtained through child/adolescent reports of both (e.g., through questionnaires, standardised measures or interviews), third party reports, analysis of official records/national statistics, secondary analysis of previously collected data, psychological autopsy, observation, and a mixture of child/adolescent report and one or more other method(s). Again, this information is detailed within **Tables 1–4**. Analyses ranged from simple t-tests and odds ratios, through (mainly logistic) regression, to the generation of complicated statistical models. Such diversity in target behaviour, reference group, setting, methods, measures and analyses, rendered meta-analysis unfeasible. Instead, findings are presented in narrative form, according to the reference group with whose behaviour association were explored, with a separate section for qualitative studies.

### **Associations With Family SSHB**

Twenty-three papers looked at the relationship between young people's SSHB and that of members of their family, with most focusing on family in general (first- and second-degree relatives, first-degree only, or unspecified), and a small number focusing on siblings, or one or both parents. Papers in this section looked mainly at suicidal ideation or attempts in both children/adolescents and their family members, with only a small minority incorporating suicide deaths or a cumulative scale of general suicidality, and one which looked specifically at self-poisoning (intent not specified). Full details of the family studies can be seen in **Table 1**.

### **Positive Findings**

Twenty (87.0%) of these studies reported positive associations between children's/adolescents' SSHB and that of their family members, and those with a family history of SSHB were repeatedly found to be more likely than those without, to engage in SSHB themselves (An, Ahn, & Bhang, 2010; Bridge, Brent, Johnson, & Connolly, 1997; Cerel & Roberts, 2005; Cheng et al., 2014; Garfinkel, Froese, & Hood, 1982; Gartrell, Jarvis, & Derksen, 1993; Goldstein et al., 2005; Gould, Fisher, Parides, Flory, & Shaffer, 1996; Johnson, Brent, Bridge, & Connolly, 1998; Kerfoot, 1988; Marusic, Roskar, & Hughes, 2004; McKenry, Tishler, & Kelley, 1982; Myers, Burke, & McCauley, 1985; Pfeffer, 1984; Pfeffer, Conte, Plutchik, & Jerrett, 1980; Pfeffer, Normandin, & Kakuma, 1994; Pfeffer, Normandin, & Kakuma, 1998; Pfeffer, Zuckerman, Plutchik, & Mizruchi, 1984; Tischler & McKenry, 1982; Tucker & Wiesen-Martin, 2015). Seven studies (35.0%) included clinical samples; the rest employed school or general hospital/community samples.

Associations between child/adolescent SSHB and their mothers' SSHB appeared to be of particular importance, with such associations often found to be stronger than those with fathers or other relatives (Kerfoot, 1988; Pfeffer, 1984; Pfeffer et al., 1994; Pfeffer et al., 1998; Pfeffer et al., 1984; Tischler & McKenry, 1982). Each of these findings were obtained through a range of methods, including self-report (e.g., Gartrell et al., 1993), therapist ratings (Pfeffer et al., 1980), clinical records (e.g., Johnson et al., 1998), family report (e.g., Bridge et al., 1997) or a combination of multiple methods (e.g., McKenry et al., 1982). The increased risk of suicide attempt or death in those with a family history of either was found in two studies to be beyond that contributed by shared psychopathological variables (Gould et al., 1996; Johnson et al., 1998).

**Longitudinal studies.** Only one (5.0%) of the papers reporting positive findings used a longitudinal design (Tucker & Wiesen-Martin, 2015). Using a sample of 1,055, this paper

indicated that siblings tended to be similar to each other in their suicidal ideation, and that older siblings' suicidal ideation predicted younger siblings' later suicidal ideation.

**Cross-sectional studies.** Nineteen (95.0%) of the papers reporting positive findings were cross-sectional in their design. Although most papers identified widespread associations between children's/adolescents' SSHB and that of their family members, one paper indicated that mothers' suicide death is only associated with that of female adolescents, whilst fathers' suicide death is associated only with that of males (Cheng et al., 2014).

### Negative Findings

Three studies (13.0%) failed to identify any associations between child/adolescent SSHB and that of their family members, and all employed school/community samples (Cerel, Fristad, Weller, & Weller, 1999; Kebede & Ketsela, 1993; Marcenko, Fishman, & Friedman, 1999). Notably, all three looked at the actual *death* of a family member by suicide – one specifically at the suicide death of a parent (Cerel et al., 1999) and the others at suicide deaths in the family in general.

**Longitudinal studies.** One (33.3%) of the papers reporting negative findings used a longitudinal design (Cerel et al., 1999). In 358 participants, no difference was observed in suicidality between those whose parents had died by suicide and those whose parents had died through other causes.

**Cross-sectional studies.** Two studies (66.7%) found no associations between a family history of suicide and adolescents' own suicide attempts or ideation using cross-sectional methods.

### Associations With Friends'/Peers' SSHB

Sixteen papers explored associations between child/adolescent SSHB and that of their friends or peers. Papers covered self-harm through to suicide attempt in adolescents, and self-harm through to suicide death in friends/peers. Authors varied in their use of terminology, with reference groups referred to as friends, close friends, peers and acquaintances, and definitions were rarely given<sup>3</sup>. Notably, all studies referred to adolescents, with no relevant research identified within child samples. Full details of these studies can be seen in **Table 2**.

### **Positive Findings**

As with family studies, the majority of studies in this section (eleven – 68.8%) reported positive associations between the SSHB of adolescents and that of their friends, with an increased likelihood of those whose friends engaged in SSHB doing so themselves, and vice versa (Alfonso & Kaur, 2012; Brent et al., 1993; Cerel, Roberts, & Nilsen, 2005; Claes, Houben, Vandereycken, Bijttebier, & Muehlenkamp, 2010; De Luca, Wyman, & Warren, 2012; Hasking, Andrews, & Martin, 2013; Ho, Leung, Hung, Lee, & Tang, 2000; Liu, 2006; Prinstein, Boergers, & Spirito, 2001; Prinstein et al., 2010; Sidhartha & Jena, 2006; You, Lin, Fu, & Leung, 2013). One study sampled clinical participants (Prinstein et al., 2010); the rest employed school/community samples.

**Longitudinal studies.** Four (36.4%) of the studies with positive findings used a longitudinal design, revealing that having friends who self-harm/attempt suicide predicts one's own later self-harm/suicide attempt (respectively). It was suggested however, that depression (Liu,

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<sup>3</sup> For the purposes of this review, it was deemed appropriate to group these referents together into one general section.

2006), adverse life events (e.g., parental discord, getting in trouble with the police) and previous thoughts of self-harm (Hasking et al., 2013) may moderated the relationship. Importantly in terms of the relevance of perceptions to associations, one study found a reciprocal relationship between perceptions and behaviour (Prinstein et al., 2010). Positive relationships were found both between adolescent self-harm at baseline and their perceptions of their friends' self-harm at 9-month follow-up, and between their perceptions of their friends' self-harm at the 9-month follow-up and their own self-harm at 18-month follow-up (although this was moderated by gender).

**Cross-sectional studies.** Seven (63.6%) of the positive studies were cross-sectional. One study suggested that associations between suicidal behaviours appeared to be particularly strong between close friends, compared to more distant acquaintances (Ho et al., 2000).

### Negative Findings

Five papers (31.3%) – all examining school/community samples – found no associations between adolescents' SSHB and that of their friends (Brent, Moritz, Perper, & Canobbio, 1996; Brent et al., 1992; Giletta, Burk, Scholte, Engels, & Prinstein, 2013; Watkins & Gutierrez, 2003). Notably, in keeping with the findings within the family section, all but one of these studies focused only on friends whose suicide attempts were fatal.

**Longitudinal studies.** Two (40.0%) of the negative findings came from longitudinal studies. Brent et al. (1996) failed to identify any increase in suicidal behaviour at follow-up in those with friends who had died by suicide, despite higher baseline rates of psychopathology. Additionally, Giletta et al. (2010) found no increase in self-harm following friends' self-harm, although friends' depressive symptoms predict an increase in adolescents' self-harm.

**Cross-sectional studies.** Three (60.0%) of the papers with negative findings used cross-sectional designs. Brent et al. (1993) found that higher levels of suicidal ideation in those whose friends had died by suicide was almost entirely accounted for by depression, and despite identifying no associations with adolescents' suicidal behaviour, Brent et al. (1992) found much higher rates of depression in those whose friends had died by suicide.

### **Associations With Multiple Sources' SSHB**

Forty-three papers did not look at individual reference groups, instead exploring the relationship between SSHB in multiple others (e.g., friends, family, romantic partners), and children's/adolescents' own SSHB. The full range of behaviours of interest was covered by papers in this section, both in terms of child/adolescent behaviour, and the behaviour of people they know. Full information for these papers can be seen in **Table 3**.

### **Positive Findings**

As was the case with the previous two sections, the majority of papers in this section (41–95.3%) reported positive associations between children's/adolescents' SSHB and that of multiple reference groups (Abrutyn & Mueller, 2014; Ali, Dwyer, & Rizzo, 2011; Bearman & Moody, 2004; Bjarnason & Thorlindsson, 1994; Borowsky, Ireland, & Resnick, 2001; Borowsky, Resnick, Ireland, & Blum, 1999; Brent, Kolko, Allan, & Brown, 1990; Chan et al., 2009; Corder, Page, & Corder, 1974; De Leo & Heller, 2004; Deliberto & Nock, 2008; Feigelman & Gorman, 2008; Fleming, Merry, Robinson, Denny, & Watson, 2007; Gex, Narring, Ferron, & Michaud, 1998; Grossman, Milligan, & Deyo, 1991; Hargus, Hawton, & Rodham, 2009; Harkavy-Friedman, Asnis, Boeck, & DiFiore, 1987; Hawton, Rodham, Evans, & Weatherall, 2002; Jegannathan & Kullgren, 2011; Laederach, Fischer, Bowen, & Ladame, 1999; Larsson & Ivarsson, 1998; Larsson

& Sund, 2008; Lewinsohn, Rohde, & Seeley, 1994; Mars, Heron, Crane, et al., 2014; McMahon, Corcoran, Keeley, Perry, & Arensman, 2013; McMahon et al., 2010; Nanayakkara, Misch, Chang, & Henry, 2013; O'Connor, Rasmussen, & Hawton, 2009; O'Connor, Rasmussen, & Hawton, 2014; O'Connor, Rasmussen, Miles, & Hawton, 2009; Portzky, Audenaert, & van Heeringen, 2009; Portzky, de Wilde, & van Heeringen, 2008; Rew, Thomas, Horner, Resnick, & Beuhring, 2001; Rotheram-Borus, Hunter, & Rosario, 1994; Rotheram-Borus, Walker, & Ferns, 1996; Rubenstein, Halton, Kasten, Rubin, & Stechler, 1998; Thompson, Kuruwita, & Foster, 2009; Thompson & Light, 2011; Tomori, 1999; Wang, Lai, Hsu, & Hsu, 2011; Wichstrom & Hegna, 2003). Four (9.8%) of these studies included clinical samples; the remainder were school/community samples.

**Longitudinal studies.** Nine papers with positive findings (22.0%) employed longitudinal designs. Adolescents' SSHB was predicted by the earlier SSHB of others, and in fact friends' or family members' suicide attempts were found to be amongst the strongest predictors of adolescents' future suicide attempts (e.g., Borowsky et al., 1999; Nanayakkara et al., 2013). One study suggested that boys may be more susceptible to the influence of friends, whilst girls are susceptible to that of both family and friends (Abrutyn & Mueller, 2014).

**Cross-sectional studies.** Thirty-two (78.0%) of the studies with positive findings were cross-sectional. Those who attempt suicide or self-harm were more likely to report knowing people who also did so (e.g., Corder et al., 1974; Deliberto & Nock, 2008). In terms of the aims of the current review relating to social norms and perceptions, one paper reported relevant findings (O'Connor et al., 2009). In this paper, group norms for self-harm (defined by the authors as "the beliefs, attitudes and behaviour of friends and peers") were associated with self-harm, but only in boys.

Two papers (4.9%) also reported explicit influence of others' SSHB over adolescents' own. As well as finding that those who self-injure were more likely to report a family history of suicidal ideation than those who did not self-injure, 38.3% of Deliberto and Nock's (2008) self-injuring participants explicitly reported that they first got the idea to do so from their peers (and 13.3% from the media). Additionally, as well as statistical associations between adolescent self-harm and that of their friends and family, O'Connor et al. (2014) report that 13.3% of their adolescent participants explicitly stated that family members' self-harm or suicide attempts influenced their own self-harm, and 23.2% reported that the same was true of their friends' self-harm or suicide attempts.

### **Negative Findings**

Only two papers (4.7%) found no associations between children's/adolescents' SSHB and that of others (Razin et al., 1991; Tomori & Zalar, 2000), and both were cross-sectional and sampled from non-clinical populations. Neither found any differences in reported suicide attempts by friends or family between those who had attempted suicide and those who had not.

### **Qualitative Studies**

Four qualitative papers were selected for inclusion in the current review on the basis that whilst exploring general risk factors or characteristics of SSHB, each found some reported influence of those behaviours in others on the child's/adolescent's own. Full details of these papers can be seen in **Table 4**.

Beekrum, Valjee, and Collings (2011) reported that a family history of attempted suicide or suicide death was indicated as a potential influence over the non-fatal suicidal behaviour of respondents, with many respondents explicitly describing instances in which they had witnessed



the suicidal behaviour of a family member or friend result in some desired outcome. This observation may well have encouraged their own suicidal behaviour, with the expectation that it might aid them in achieving some goal in the same way. Indeed, some participants reported instances where their own suicidal behaviour had improved their situation.

Herrera, Dahlblom, Dahlgren, and Kullgren (2006) found that suicide among friends sometimes acted as a trigger for respondents' own suicide attempts. Aside from these overt reports, many of the other triggers identified in this paper featured themes of loss or abandonment. One could arguably view the suicidal actions of a friend or relative as their afflicting both loss and abandonment upon an individual, so although these accounts do not explicitly refer to the suicide of friend, the resulting outcomes may be related. This is not, however, explored in this paper, and death of a relative generally (i.e. not by suicide), was also alluded to as important, by several participants.

Orbach, Gross, and Glaubman (1981) reported that one of the common characteristics of most of the children they studied – all of whom had threatened or attempted suicide – was a suicidal parent in their family (usually their mother). In some cases, parents had openly spoken about their own or the child's potential suicide in front of the child, even offering a choice of weapons with which the child might take their life, so it might be argued that to those children, suicide became a particularly "real" concept and a possible addition to their behavioural repertoire.

In the final qualitative study, Tingey et al. (2014) reported a number of instances in which participants described imitating others' suicide attempts, as well as concerns that others might have been aware that they copied their behaviour. One participant also compared their suicide attempt to a previous attempt by a cousin, describing their disappointment that their family's reaction had not been as supportive towards them in the aftermath as it had been towards their cousin; perhaps

suggesting that elicitation of a similar reaction may have been part of the motivation for their own attempt.

## **DISCUSSION**

### **Summary of Findings in Relation to Aims**

The current systematic review aimed to investigate whether relationships exist between child/adolescent SSHB and the SSHB of people they know; to identify whether perceptions of others' SSHB – and their potential inaccuracies and biases – are considered in the literature or whether accurate knowledge is assumed; and to explore whether any literature exists around the perceived social norms of SSHB or normative influence.

Overall, the vast majority of the literature suggests that there are positive associations between children's/adolescents' SSHB and that of people they know. Such findings were obtained both through cross-sectional and longitudinal inquiry. The literature is wide-ranging in terms of where associations appear to lie, with some studies reporting the strongest relationships with family members' behaviour (e.g., Ali et al., 2011; Rotheram-Borus et al., 1996) and others reporting that friends' behaviour is particularly predictive of that of the child/adolescent (e.g., Larsson & Sund, 2008; Lewinsohn et al., 1994). Different explanations for these findings have been proposed, each with their own merits. For example, family associations may be particularly strong as a result of the shared time spent with one's family, experiencing shared outcomes of events (e.g., Ali et al., 2011); or peer associations may be stronger because young people may look to their friends for behavioural guidance (e.g., Brechwald & Prinstein, 2011).

It was found that very little distinction was made in the literature between children's/adolescents' perceptions of the behaviours of others, and their actual knowledge of

those behaviours; the two were typically assumed to be synonymous. Although other methods were used, self-report was by far the most common method of obtaining data, and the implications of relying on adolescents' self-reports will be discussed below. In terms of practical applications of the research to practice, as discussed by Brechwald and Prinstein (2011), if inaccurate perceptions are related to certain behaviours, employing interventions which correct those misperceptions may be effective in reducing related behaviours, as has been the case in other behavioural domains (e.g., Berkowitz, 2004; McAlaney, Bewick, & Hughes, 2010).

Only one paper reviewed touched upon normative influence (O'Connor et al., 2009). O'Connor et al. suggest that as well as others' behaviour (descriptive norms), others' positive attitudes towards those behaviours (injunctive norms) may be associated with individuals' own behaviours. If overestimations are present for either of these norms, particularly given the "invisible" nature of such concepts as suicidal ideation (which is obviously more difficult to observe than are suicide attempts or deaths), individuals' behaviour may be increased – as has been observed for other damaging behaviours (e.g., Borsari & Carey, 2003; Clemens, Thombs, Olds, & Gordon, 2008; Labrie, Grossbard, & Hummer, 2009; Lewis & Neighbors, 2004).

## **Methods and Measurement**

The prevailing use of cross-sectional design and quantitative data contributes to a certain lack of clarity regarding whether children/adolescents are influenced by the behaviour of people they know, whether they choose to associate with people they believe engage in similar behaviours to themselves, or whether they are simply more likely to be aware of/overestimate the prevalence of those behaviours in others because they engage in them themselves. The literature employing longitudinal methods – as well as the qualitative evidence – supports the findings from cross-

sectional studies, and suggests that exposure to SSHB in others increases children's/adolescents' engagement in those behaviours, but there are also a minority of longitudinal studies ( $n = 3$ ) which failed to find any influence. The findings of Prinstein et al. (2010) suggest that there may in fact be a reciprocal relationship between perceptions of others' SSHB and one's own; these authors found that adolescents' self-injury at baseline was related to perception of friends' self-injury 9 months later, but that perceptions of friends' self-injury was also related to own self-injury 9 months later. Other researchers however, failed to find such effects (Giletta et al., 2013).

An abundance of research findings gathered in school settings should be considered with further caution. Due to the process of recruiting from school populations, it is possible that many of the young people who might have been of particular interest in terms of the research aims were excluded. In some institutions in Scotland for example, researchers are required to obtain parental consent for anyone under 16, which means that only those children/adolescents whose parents wish them to participate will be allowed to do so. If a child/adolescent or their family has experience of SSHB or there are other particular issues in the family which might make SSHB more likely, parents may decide that the research would be too distressing for their child, and decline to participate. Similarly, those pupils who the literature would suggest are most at risk of SSHB (e.g., those with psychological problems, those from dysfunctional homes, or those with problems at school or with friends; see Webb, 2002) may be particularly likely to miss school as a result (e.g., through ill-health, truancy), and their potentially interesting data is therefore lost. Those participants who dropped out between waves 1 and 2 of Hasking et al.'s (2013) study scored higher on the Self-Harm Behaviour Questionnaire than those who completed follow-up, indicating that it is at times those participants who are most at risk, who fail to participate. These issues may even be demonstrated at the organisational level – with some authors reporting that schools which

declined to participate in their research had experienced more recent exposure to deaths by suicide than had those schools which participated (Ho et al., 2000). Furthermore, although all of the reviewed studies which employed clinical samples ( $n = 12$ ) reported positive findings, the relative low number of such studies and the fact that most were conducted in the US means that it is unclear whether patterns displayed in clinical settings would be as consistent as in community settings on a larger scale.

A heavy reliance on self-report methodology further complicates the picture, as self-report by definition enables the reporter to provide only that information to which they are privy, or indeed that which they choose to provide, and the potential bias that this affords may be particularly pertinent with a topic as sensitive in nature as SSHB. Data of this nature might be vulnerable to recall bias, social desirability, shame/embarrassment etc., such that a dataset relying heavily on self-report data may be somewhat less accurate than researchers might hope. O'Connor et al. (2014) suggest that the lower than expected self-harm rate they observed in their Northern Irish sample may reflect a society-wide reluctance to disclose personal information as a result of "The Troubles" and associated sectarianism, as opposed to a genuinely low rate of self-harm. The practice employed by many researchers, of informing participants that those deemed at high risk of suicidality will be referred to support services or reported to their parents (e.g., Marcenko et al., 1999; Watkins & Gutierrez, 2003) may further discourage participants from admitting to suicidal thoughts or behaviour. In support of this, Marcenko et al. (1999) claim that research into SSHB better reflects participants' willingness to disclose their SSHB, than their actual SSHB. There is also the potential for inaccuracy with self-reported data, though it could be argued that individuals' perceptions of events – regardless of accuracy – are more important than the actual events themselves, in terms of the resultant impact on that individual. This has been shown to be the case

in the alcohol literature, where perceived norms of peer alcohol use have been found to better predict personal use than peers' actual alcohol use (Perkins, Haines, & Rice, 2005). As such, self-report might be the ideal method for obtaining information regardless of accuracy, and the (in)accuracy itself, and its relation to the individual's own behaviour, is of most interest. Moreover, a number of researchers made concerted attempts to avoid these types of biases – for example by using multiple data sources (e.g., Corder et al., 1974; Johnson et al., 1998) or collecting data about others' behaviour directly from those individuals (e.g., Bearman & Moody, 2004; Feigelman & Gorman, 2008; Thompson et al., 2009) – and findings were nevertheless comparable to those studies which did not employ such measures.

A clear methodological limitation of research in this field is the lack of feasibility of experimental manipulation, which ordinarily assists researchers in determining whether apparent effects are the result of variables of interest, or whether other factors are responsible for outcomes. Needless to say, it would be impossible for example, to randomly expose a proportion of participants to SSHB in people they know and then compare how their own behaviour develops in relation to an unexposed group. However, a small amount of experimental research has been conducted in this area, and similar findings have been found to those of the studies reviewed here. Using a self-aggression paradigm, Berman and Walley (2003) found that participants tended to engage in similarly self-aggressive behaviours as their (fictitious) opponents, in a reaction time task for which the “loser” was required to self-administer electric shocks. Those participants whose opponent engaged in high self-aggression on losing trials also tended to self-administer an increasing severity of shock, whereas those whose opponents engaged in low self-aggression also tended to self-administer less severe shocks. Sloan, Berman, Zeigler-Hill, and Bullock (2009) later replicated these findings. Whilst these studies are interesting and provide us with an approximation

of information that we would be unlikely to be able to obtain in such a controlled manner directly, they are lab-based, highly contrived and thus lacking in mundane realism, which limits the extent to which the results can be generalised to SSHB in the real world. As such, more naturalistic, ecologically valid research, controlling for as many other variables as is appropriate and feasible, may be the most rigorous method researchers currently have at their disposal for exploring these issues.

### **Terminology/Definitions**

An issue which makes synthesis of findings challenging, and conclusions drawn somewhat tentative, is the breadth of terminology used. There is debate across the field regarding the similarity or relatedness of self-harm and suicide attempt, and the utility of differentiating between suicidal and non-suicidal self-harm (e.g., Kapur et al., 2013; O'Carroll et al., 1996; Silverman et al., 2007). Some papers in the current review refer to non-fatal suicide attempts and self-harm synonymously, paying little attention to suicidal intent (e.g., Cerel et al., 2005) while others refer to and measure self-harm with and without suicidal intent separately (e.g., Mars et al., 2014). Behaviours termed as self-harm also vary across the reviewed literature from relatively less severe behaviours such as pinching, preventing wounds from healing (e.g., Alfonso & Kaur, 2012) or self-biting (e.g., You et al., 2013), to more dangerous and potentially lethal acts such as self-poisoning (e.g., Kerfoot, 1988) or jumping from a height (e.g., Hawton et al., 2002). The meaning derived from terms such as "self-harm", "self-injury", "suicide attempt" etc. is likely to not only differ across research teams, but also across participants. The same may also be true of reference group terms such as "family member", "friend" or "peer", which also varied across studies.

Further, the use of the general term “suicidal behaviours” by many researchers (e.g., Myers et al., 1985) may conceal useful information around specific behaviours, and result in the incorrect generalisation of findings across different behaviours within a spectrum of SSHB. Harkavy-Friedman et al. (1987) compared subgroups of those with different SSHB on experience with the behaviour of different groups, and found that adolescents who ideate or who attempt suicide have more experience with family suicidal behaviour than those who neither ideate nor attempt suicide. They were not however, different to each other in experience with family suicidal behaviour. Conversely, those who made suicide attempts had more experience with peer suicidal behaviour than those who only ideated, who in turn had more experience than those without any SSHB. Further, Mars et al. (2014) noted different associations with friends’ and family’s self-harm and suicide attempts between adolescents’ who engaged in SSHB with and without suicidal intent. These findings have implications for the interpretation of the results of studies which group together reference groups (e.g., those which ask generally about “people you know”; hence their exclusion from the current review), and those which group together behaviours (e.g., into one “suicidal behaviour” variable).

## Samples

Samples were frequently large and overall a wide range of ages, ethnicities and social situations were represented. Despite this, however, the relative rarity with which people actually tend to engage in SSHB means that often, samples of *those* individuals will actually be quite small in real terms, potentially making associations difficult to detect. Perhaps as a result of this, there are gaps in the literature in terms of specific behaviours (e.g., there are no family-focused papers which address self-harm specifically). Some researchers explicitly report being unable to explore potentially interesting aspects of the data due to the limited number of individuals engaging in



target behaviours (e.g., Nanayakkara et al., 2013), and other researchers may have clumped together groups of data for the same reason.

There may also be some limitation to the representativeness of findings from some of the reviewed studies due to the employment of somewhat restrictive inclusion criteria. For example, a large population-based survey of Korean adolescents (An et al., 2010) only included data from households in which all members agreed to take part and did not include single-parent households, which potentially increased the likelihood of excluding individuals who might be particularly vulnerable. Other studies which have included parental presence in the home as a variable suggest that those from single-parent households might be at particularly high risk of these kinds of behaviours (e.g., Garfinkel et al., 1982). Additionally, studies such as that of Kerfoot (1988) and Tischler and McKenry (1982) made use of very specific samples (i.e. children and adolescents referred to psychiatric services following an episode or self-poisoning, and adolescents treated in an emergency room for suicide attempt, respectively), such that findings may illustrate a particular vulnerability of that particular group of psychiatric inpatients, or those who seek/require emergency medical help, as opposed to something characteristic of those engaging in SSHB generally, or those who are never referred to health services. Nevertheless, comparable findings were obtained from a range of other samples and from studies with less restrictive inclusion criteria, so these concerns may be minimal.

A final important observation regarding the samples studied in the reviewed papers is that although samples were taken from all over the world, all studies were published in English (potentially resulting in some inclusion bias) and the majority of studies were in fact undertaken in the western world, particularly in the US and the UK. The World Health Organisation (2014) reports that the majority (75%) of suicides take place in low and middle income countries, so there

are issues with trying to generalise the findings of a predominantly wealthy, western sample, to suicidal behaviour worldwide. Whilst findings were relatively uniform across the samples examined, different patterns might be observed in non-English language studies or in studies of the relatively under-sampled developing world. More research into issues surrounding SSHB internationally is desperately needed.

### **Unexamined Potential Confounds**

A number of factors which may have affected individuals' behaviour or the way in which they coped with exposure to trauma, and which therefore might have an impact on the research findings reviewed here, were largely ignored in the literature. Few papers considered for example, the length of time which had elapsed since exposure, and many only asked participants to report on recent exposure (e.g., within the past year). The number of exposures experienced by an individual was similarly overlooked, so it is unclear whether numerous exposures are more likely to result in habituation or cumulative distress. The closeness of the relationship between the child/adolescent and the other(s) to whose SSHB they were exposed might also have determined the impact of that exposure, and how profoundly it was felt or experienced, but exploration of this was limited. Whether or not individuals sought or received any support in dealing with their exposure to others' SSHB might also have altered outcomes for them, but this was also generally omitted from the literature. Finally, a number of the longitudinal studies reviewed failed to provide any information on baseline levels of SSHB or exposure, rendering it difficult to determine whether exposure to the SSHB of others actually resulted in children's/adolescents' increased SSHB, or whether those young people were either already engaging in SSHB themselves, or had previously experienced the SSHB of others.

## Suggested Explanations for Findings

A number of possible explanations exist for the findings of this review. The first issue worth consideration is the causal direction between individuals' own behaviour and their reports of that of others. It is possible that individuals who engage in SSHBs erroneously report that they know others who also do so, on account of their believing that others probably behave in similar ways to them (as is the case with the false consensus effect; Prinstein & Wang, 2005), or that individuals tend to associate with individuals who behave in similar ways to them (e.g., Joiner, 2003). Evidence exists that although peer-selection effects may play a role, socialisation effects are almost certainly present (Prinstein et al., 2010; You et al., 2013), and the associations found between family members with whom one does not *choose* to associate and the contagion effects in forced settings such as hospitals (e.g., Gould, Petrie, Kleinman, & Wallenstein, 1994) or police custody (e.g., Cox & Skegg, 1993) argue in favour of socialisation effects as an explanation.

Rosen and Walsh (1989) suggest that a need to belong to groups may partly contribute to the clusters of self-harm which they observed in adolescent inpatient settings, so conformity to perceived norms may play an important role in the transmission of these behaviours. A related mechanism through which such behaviours are transmitted is proposed by Taiminen (1992), who suggests that out of empathy for a fellow human being who has suffered, individuals may project their best qualities onto people who engage in suicidal behaviour, which increases the extent to which they can relate to those individuals, inadvertently resulting in an increased capacity to relate to the suicidal behaviour itself. By this logic, if individuals believe suicidal behaviour to be widespread or normative amongst people they know, their ability to relate to it may be increased, and their risk of engaging therein thus increased also.

The nature of SSHBs specifically may make them particularly prone to social influence. Allen et al. (2006) found that those participants who are more susceptible to social influence are also more prone to psychological problems such as depressive symptoms. Given that depression is relatively common in those who engage in SSHB (and vice versa), associations observed between individuals' behaviour and that of people they know may be the result of a cumulative effect of both depression and a greater propensity for social conformity. Indeed, Mittendorfer-Rutz, Rasmussen, and Wasserman (2008) claim that the associations they found between family suicidal behaviour and individuals' own may be the result of a combination of both imitation or social modelling, and a genetic predisposition to psychiatric disorder.

Watkins and Gutierrez (2003) propose a diathesis-stress model of the effects of exposure to others' suicidal behaviour. They suggest that simply having knowledge of an individual ending their life would not in itself trigger another individual to do the same, but that if subsequent events occur for that individual which cause them distress with which they struggle to cope, they might recall that someone they knew "solved their problems" by ending their life, and see suicide as a feasible option to solve their own problems. In support of this notion are the findings of Swanson and Colman (2013), who found that exposure to the suicidal death of someone known personally predicted adolescent suicidal ideation and attempts 2 years later, but only in the presence of previous stressful life events. It is possible that these proposed effects hold for perceived normative SSHB as well as for specific instances of exposure; that is, the belief that other people engage in SSHB may act as a prompt for one's own, given a particular threshold of distress has been reached. This notion is in keeping with O'Connor's (2011) IMV model of suicidal behaviour, in which suicidal ideation is proposed only to convert into action given certain additional motivational and volitional triggers; e.g., the belief that others in one's social network engage in SSHB. The findings

of O'Connor et al. (2012) support this; reports of friends and family engaging in SSHB were identified as a volitional factor which differentiated adolescent self-harm ideators from enactors.

### **A Possible Protective Effect of Exposure to Suicide Death**

A common (although not absolute) finding throughout the current review is that exposure to a suicide *death* was less often associated with children's/adolescents' own behaviour, than was exposure to other, non-fatal behaviours. This may indicate that experiencing the death of someone else by suicide may have a qualitatively different impact on an individual than does witnessing a non-fatal attempt, or non-fatal self-harm. One study which looked at both family suicide attempts and deaths found that adolescent suicidal behaviour was related to first-degree relatives' suicide attempts, but not deaths (Pfeffer et al., 1994), and the same pattern has been found with regard to friends (Ho et al., 2000). Notably, in all three of the family studies, and three out of the four friends/peers studies which found no associations with children's/adolescents' behaviour, fatal behaviours were focused upon. Anecdotal evidence has also suggested that exposure to suicide deaths may in fact work to inhibit the suicidal behaviour of an individual; as a result of witnessing the damage and misery it can cause (Brent et al., 1996).

Further support for this "protective" notion can be taken from the consistently reported increase in suicidal behaviour following mass-media reporting of celebrity or high-profile suicides, internationally (e.g., Cheng, Hawton, Lee, & Chen, 2007; Etzersdorfer, Voracek, & Sonneck, 2004; Pirkis, Burgess, Francis, Blood, & Jolley, 2006). In this kind of "remote" or impersonal situation, individuals may be exposed to details of the suicide (which they can use to imitate it) and characteristics of the deceased (to which they might relate), but are never exposed to the pain suffered by the bereaved (which may have acted as a deterrent). Indeed, another paper in the

current review (Chan et al., 2009) found that media reporting of suicide had a greater influence on suicidal behaviour than did the suicidal behaviour of people known to the individual. Some authors even argue that this apparent inhibitory effect may not be specific to fatal behaviours only. Hasking et al. (2013) argue that the protective effect they found against engaging in self-harm in those who knew others who did so, may be due to their having experience of the impact that self-harming has on those around the individual. These ideas are of course speculative, and require further investigation. A handful of other studies reviewed which also looked at suicide deaths found positive associations with adolescents' behaviour (e.g., Bridge et al., 1997; Cerel & Roberts, 2005; Cheng et al., 2014; Garfinkel et al., 1982), so the notion of a protective effect cannot provide an adequate explanation in all circumstances.

Brent et al. (1992) provide a potential alternative explanation for the lack of associations found between adolescents' behaviour and their reports of knowing someone who has died by suicide. Far from experiencing a protective effect, their participants who were exposed to friends' suicide death had higher lifetime exposure to suicidality prior to the "target" death, than those who were not (currently) exposed, such that previous exposure had had a habituating effect resulting in less distress following subsequent exposure. Alternatively, the previous exposures may have resulted in those individuals being at an already optimal level of distress, with an increased (compared to those without exposure) but stable risk of suicidality that subsequent exposures did not affect. The data supports this latter suggestion, with those with exposure exhibiting higher levels of past, current and new-onset psychiatric disorder than those without, suggesting that the exposed individuals are indeed operating at an increased level of psychological distress. As the majority of papers fail to take into account past exposure, an already established optimum impact

of exposure previous to the one currently studied cannot be ruled out, and an apparent lack of association may simply be an artefact of this effect.

### **Limitations of the Review Process**

The current review was susceptible to many of the limitations common to other reviews, particularly on account of the strict inclusion criteria employed. For example, the inclusion of only peer-reviewed journal articles necessarily excludes the grey literature, which it has been claimed is likely to result in exaggerated reports of effects (e.g., McAuley, Pham, Tugwell, & Moher, 2000). It is possible therefore that the findings of the current review overstate associations as a result of publication bias of positive findings. However, the presence of several papers in the current review reporting negative findings may somewhat minimise concerns in this regard.

Another potential limitation intrinsic to this and many reviews is the use of the same data set by authors of multiple papers. Specifically, many of the papers reviewed here use data from the National Longitudinal Survey of Adolescent Health (Add Health), which despite consisting of high-quality, seemingly generalizable data, renders the overall data set under review somewhat smaller than it at first appears, and the multiple studies which use that data, susceptible to similar limitations. Independent findings, however, repeatedly support those of the Add Health survey, so this concern may also be nominal.

Finally, due to the diversity of methods, samples, analyses and definitions employed by study authors, meta-analyses were unfortunately not feasible, such that the current review is limited to providing a descriptive summary of findings. Given that meta-analysis is increasingly considered the gold-standard of research synthesis, it is regrettable that it was not possible in this case. This is perhaps indicative of the disparate terminology and divergence of theoretical

approach across the SSHB literature generally. A more consistent, uniform approach across the field would arguably aid in clarifying some of the issues which remain uncertain.

## **Future Directions and Practical Implications**

Whilst associations between children's/adolescents' SSHB and that of people they know are apparent, the current review identified a number of conflicting findings, so firstly, systematic research around the factors which affect associations (e.g., nature of relationship to others, behaviour in question, psychopathology and environmental characteristics) is necessary to determine exactly where associations lie, in order that they might be addressed through intervention.

Furthermore, research is necessary to determine the exact mechanism(s) by which associations between child/adolescent SSHB and that of people they know occur. Research to date has provided a mixture of findings, and a more comprehensive understanding, using more systematic approaches, may assist in the development of effective interventions. For instance, if the SSHB of other people impacts upon that of a child/adolescent through socialisation processes, service providers might aim to introduce assessment of exposure to such behaviours when assessing risk. This may help to identify those at high risk as a result of exposure, and in particular those for whom risk may be especially high as a result of exposure combined with other, more classical risk factors (e.g., depression, impulsivity). Alternatively, if SSHB develops (or is maintained) as a result of shared group identity or reward processes, interventions should be designed which address the social constructs behind these identities, and aim to provide alternatives.



Research is also needed to determine the extent to which normative perceptions impact upon the associations evident in the research to date. If it is merely the perception of others' SSHB and attitudes towards that behaviour which is associated with a child's/adolescent's own, rather than the behaviours or attitudes themselves, more information about those perceptions would be useful. If heightened perceptions of SSHB in others or perceptions of more positive views of those behaviours in others are sufficient to increase one's own engagement, interventions should be designed which aim to address these perceptions and promote healthier norms, thereby potentially reducing any related increase in behaviour. These types of interventions have proven effective in reducing engagement in a wide array of other health-damaging behaviours, and may be similarly effective in reducing SSHB. Indeed, Wang et al. (2011) note the importance of designing school-based programmes which focus on increasing appropriate peer norms and improving attitudes towards life and help-seeking.

As it stands, the current findings highlight the potential impact of other people's actual or perceived SSHB in the development of young people's own SSHB. As such, schools, families and professionals working with young people should aim to familiarise themselves with the social environments in which their young people operate, risk assess and monitor the well-being of their young people, and aim to educate their young people on self-care and available sources of support and advice. Where feasible, monitoring of actual or perceived SSHB in friends and family, and responding with the appropriate support, might prove a valuable addition to existing practices designed to protect young people from harm.

## **CONCLUSION**

Overall, the current review identified a vast array of published evidence for positive associations between children's/adolescents' SSHB and that of people in their social networks. Methodological inconsistencies make direct comparison and synthesis of findings across the literature difficult, but despite variation in methods, samples and settings, the identification of associations is highly consistent (perhaps with the exception of the suicide death of others, which is slightly less consistently associated with an individual's own SSHB). The findings of this review suggest that associations exist internationally, and the existence of such widespread associations warrants further investigation. In particular, findings highlight the potential utility of considering the impact of social networks during intervention development.

One factor that potentially underlies many of the studies reviewed, and which may result in negative consequences, is the potential for a discrepancy between the extent to which individuals believe others are engaging in SSHBs, and the extent to which they actually are. Findings from social norms research in other behavioural domains indicate that perception of others' behaviour does not always match what those others report themselves, and heightened perceived norms are consistently related to an increase in one's own behaviour (e.g., Borsari & Carey, 2003; Clemens et al., 2008; Labrie et al., 2009; Lewis & Neighbors, 2004). The literature reviewed here relies heavily on self-reports of others' behaviour, so it is possible that these reports are overestimated, and that individuals' own SSHB is increased as a result. The extent to which young people's perceptions of others' SSHB are discrepant from reality, and whether or not those perceptions influence young people's own SSHB is an important, yet entirely under-researched consideration. Future research should focus on assessing the impact of normative perceptions on young people's SSHB and explore the mechanisms through which influence is exerted, with a view to developing preventative interventions.

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Accepted Manuscript

**Table 1.** Papers reporting on associations with family SSHB

	Author s	Sample (setting)	Design/met hod	Child/adole scent behaviour	Behavi our of others	Refere nce group	Relevant findings
Positive findings							
LONGITUDINAL	Tucker and Wiese n- Martin (2015)	1,055 pairs of siblings aged 12–19 years in the US	Face-to- face interviews carried out with both siblings, in two waves (1 year apart)	Suicidal ideation	Suicida l ideation	Sibling s	Similarity in ideation between siblings was observed both within and across waves. Similarity in ideation at wave 1 predicted the same at wave 2, and older siblings' ideation predicted

							younger siblings' ideation
CROSS-SECTIONAL	An et al. (2010)	2,965 Korean 15–18 year olds and their parents (general/community)	National survey	Suicidal ideation	Suicidal ideation	Parents	A history of parental suicidal ideation was positively related to own suicidal ideation
	Bridge et al. (1997)	58 US 13–19 year olds and their relatives (general/community)	Semi-structured interviews, psychiatric assessment	Suicide attempt	Suicide attempt	Family	Suicide attempts were higher in relatives of those who had attempted suicide than relatives of those who had no

							history of psychiatric disorder
	Cerel and Robert s (2005)	5,856 US 11–18 year olds (general/community)	Cross-sectional use of data from the National Longitudinal Survey of Adolescent Health	Suicidal ideation, suicide attempt	Suicide attempt, suicide death	Family	Those with a family history of attempted suicide or suicide death were more likely to have suicidal ideation or to attempt suicide themselves, than those without
	Cheng et al. (2014)	500 15–19 year olds who died by suicide in Taiwan, and	Analysis of official data from the Taiwan	Suicide death	Suicide death	Parents	Male suicide death was associated

		15,000 matched controls (general/comm unity)	Mortality Register				with their father's suicide death but not their mother's. Female suicide death was associated with their mother's suicide death but not their father's
	Garfin kel et al. (1982)	505 children and adolescents (mean age 15.3 for girls, 14.7 for boys) admitted for	Compariso ns of data taken from official records	Suicide attempt	Suicide attempt, death	Family	Children and adolescents admitted to emergency room for suicide



		suicide attempt and 505 matched controls in Canada (children's hospital emergency room)					attempts had more suicide attempts and deaths in their family than those admitted for other reasons
	Gartrel l et al. (1993)	229 7th–9th grade Alberta Indians in Canada (schools)	Self-report questionnai res	Suicidal ideation, attempt	Suicide death in the househ old	Family	Significantl y more of those with a suicide in their household had both considered and attempted suicide than

							those without
	Goldstein et al. (2005)	405 7–17 year olds with bipolar disorder in the US (general/community, and clinical referrals)	Diagnostic and other clinical measures, plus questions on lifetime suicidality (as part of a larger, longitudinal study)	Suicide attempt	Suicide attempt	Family	Those who had attempted suicide were more likely than those who had not, to have a family history of suicide attempt
	Gould et al. (1996)	120 of 170 consecutive suicide deaths 19 years and under and 147 controls in the US (general/community)	Interviews with informants of those who died by suicide and with controls	Suicide death	Suicide attempt, death	Family	Those who died by suicide were significantly more likely than controls to have a family

			and their informants				history of suicidal behaviour, and the increased risk was beyond the risk contributed by their own psychopathology
Johnson et al. (1998)	Relatives of 62 13–19 year old US suicide attempters and 70 non-suicidal psychiatric controls (in- and out-patient psychiatric services)	Psychiatric assessment and self-report questionnaires	Suicide attempt	Suicide attempt, death	Family	Familial suicide death and attempt rates were higher in relatives of attempters than controls. When Axis I	

							disorder  was  controlled  for, there  was no difference,  but when  Axis I  disorder and  personality  disorder  were  adjusted for,  rates were  higher again  in relatives  of  attempters
	Kerfoot t (1988)	100 7–15 year olds referred to psychiatric services following self-	Psychiatric assessment s, and social history	Self- poisoning	Self- poisoni ng	First- degree relativ es	The biggest (significant) difference between self-

		poisoning, plus 50 psychiatric controls in England (psychiatric inpatient units)	taken (from parents), cross- sectional				poisoners and controls was found in the incidence of previous self- poisoning by a first- degree relative (often mothers)
	Marusi c et al. (2004)	184 senior high school students with a mean age of 18 years in Slovenia (schools)	Self-report questionnai res, cross- sectional	Suicidal thoughts, plans, attempts	Suicide attempt, death	Family	Suicide attempt in family was positively correlated with own suicide plans, and when split by gender,

							family suicide attempt was correlated with thoughts, plans and attempts in males (but not females). No correlations were found with family suicide deaths
	McKenry et al. (1982)	92 12–18 year old suicide attempters, 46 matched controls and their parents, in	Self-report questionnaires, cross-sectional	Suicide attempt	Suicidal thoughts, threats,	Family	Adolescent suicide attempters reported more suicidal

		the US (general emergency room)			attempts		behaviour in the family than did controls, but only attempters' mothers' reports reflected this
	Myers et al. (1985)	348 5–13 year olds admitted to a psychiatric unit over 4 years in the US (psychiatric inpatient unit)	Chart review, with various sub-aspects, cross-sectional	“Suicidal behaviour” (using a suicidal behaviour scale)	“Suicidal behaviour” (not specified)	Family	Suicidal behaviour in the family differentiated the suicidal group from non-suicidal controls
	Pfeffer (1984)	101 6–12 year olds in the US (schools)	Cross-sectional semi-structured	Level of suicidality (on a 6-point scale)	Level of suicidality (on a	Parents	Mothers of suicidal children scored

			interviews with children and their parents (questionnaires completed from responses)		6-point scale)		higher on the 6-point suicidality scale than mothers of non-suicidal children. Fathers did not differ. Suicidal children were more likely to have a mother with higher suicidal scores than were non- suicidal children
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	Pfeffer et al. (1980)	39 6–12 year old psychiatric patients in the US (psychiatric outpatient unit)	Cross-sectional measures completed by therapists	“Suicidal behaviour” (as judged by therapists)	Ideation, threats, attempts, death	Parents	Parents of “suicidal” children had significantly more suicidal ideation than parents of “non-suicidal” children, but they did not differ in threats, attempts or deaths
	Pfeffer et al. (1994)	123 children (mean age 9–10) and 488 of their first-degree and 1,062 of their second-degree	Self-report interviews (questionnaires) with children and parents,	Suicidal ideation, attempt	Suicide attempt, death	Family (first- and second-degree	More first-degree relatives of those with suicidal ideation or attempts

		relatives, in the US (psychiatric inpatients and community controls)	family history interviews, and 6–8 year longitudinal follow-ups with parents (not reported)			relatives)	reported suicide attempt than did relatives of those without (including 50% of mothers of suicidal children). No difference found for suicide death or in second-degree relatives
	Pfeffer et al. (1998)	133 children (mean age 16–17), 650 of their first-	Self-report interviews (questionnaires) with	Suicidal ideation, attempt	Suicide attempt, death	Family (first- and second	Suicide attempts of mothers were more

		degree and 1,174 of their second-degree relatives, in the US (psychiatric inpatients and community controls)	children and parents who were originally studied 6– 8 years previously (not reported)			- degree relativ es)	prevalent among adolescents with a lifetime history of suicide attempt. History of own suicide attempt was more than seven times higher in those whose mothers had a history of suicide attempt
	Pfeffer et al. (1984)	101 6–12 year old school children and their parents, in	Cross- sectional, semi- structured	Suicidal ideas, threats, attempts	Suicida l ideas, threats,	Parents	Suicidal behaviour scores were higher for

		the US (schools)	interviews with children and their parents (separately)		attempt s		mothers of children with any suicidal tendencies than for those without, but fathers' scores did not differ
	Tischler and McKenry (1982)	46 12–18 year old suicide attempters, 46 non-suicidal matched controls and the parents of both groups, in the US (emergency department of	Self-report questionnaires, cross-sectional	Suicide attempt	Suicidal ideation	Parents	Mothers of suicide attempters had higher suicidal ideation scores than mothers of non- attempters, despite having

		general hospital)					similar self- image. No difference was found for fathers (despite attempters' fathers having lower self- esteem than fathers of non- attempters)
Negative findings							
LONGITUDINAL	Cerel et al. (1999)	26 5–17 year olds whose parents died by suicide, and 332 whose parents died by other causes in the US	Questionna ires and diagnostic interviews 1 month post-death, with longitudina	4 point scale of suicidality (including ideation, intent, plans and attempts)	Suicide death	Parents	No differences were found in suicidality between those whose parents died

		(general/comm unity)	1 follow- ups at 6, 13 and 25 months				by suicide and those whose parents died by other causes
CROSS-SECTIONAL	Kebede and Ketsela (1993)	519 12–18 year old Ethiopian high-school students (schools)	Self-report questionnaires, cross-sectional	Suicide attempt	Suicide death	Family	Family history of suicide was not found to be associated with own suicide attempts
	Marcello et al. (1999)	120 16 year old high-school students in the US (schools)	Cross-sectional, self-report questionnaires completed at interview	Suicidal ideation	Suicide death	Family	Suicidal ideators were no more likely than non-ideators to have had a family

							member die by suicide
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**Table 2.** Papers reporting on associations with friends'/peers' SSHB

	Authors	Sample (setting)	Design/met hod	Child/adol escent behaviour	Behavio ur of others	Referenc e group	Relevant findings
Positive findings							
LONGITUDINAL	Hasking et al. (2013)	2,637 (at time 1) and 1,973 (at time 2) 12– 18 year old Australian school pupils (schools)	Longitudin al (1 year) self-report surveys	Self-injury	Self- injury	Friends	Having friends who self-injured differentiat ed those who self- injured at follow-up from those who did not, and predicted the onset of self-injury between time points. Life events and



							previous thoughts of self-injury moderated the relationship between peers' self-injury and onset of self-injury
	Liu (2006)	5,589 (at wave I) and 4,285 (at wave II) high school students (ages not stated) in the US (schools)	Cross-sectional and longitudinal analysis of data taken from the National Longitudinal study of	Suicide attempt	Suicide attempt	Friends	At wave I, friends' suicide attempts were related to own attempts, especially at lower levels of depression.

			Adolescent Health				At wave II, suicide attempts were more likely in those reporting suicide attempts or deaths by friends, and again this relationship was weakened by depression (particularly in boys)
Prinstein et al. (2010)	Study 1 – 377 6–8th graders in	Study 1 – Longitudinal (1 year) self- and	Self-harm	Self-harm	Friends	Study 1 – Best friends’ reported	

		the US (schools) Study 2 –140 12– 15 year old psychiatric inpatients in the US (psychiatric unit)	friend- report Study 2 – Longitudin al (9 and 18 months) self-report				self-harm was a predictor of own self- harm at time 2, moderated by gender and grade (girls, 6th graders) Study 2 – Own self- harm at time 0 was positively associated with higher levels of perceived self-harm in friends at 9 months,
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							and perceptions were positively associated with own self-harm at 18 months. Again, effects were moderated by gender
	You et al. (2013)	5,787 12–18 year old Hong Kong school pupils (schools)	Longitudinal (6 months) self-report questionnaires	Self-harm	Self-harm	Friends	Best friend's and friendship group's self-harm predicted own self-harm, and own self-harm

							predicted friendship group's self-harm (i.e. self- harming youth tended to join peer groups who self- harmed)
CROSS-SECTIONAL	Alfonso and Kaur (2012)	1,748 high school pupils in 6th and 8th grade, in the US (schools)	Self-report questionnai res	Self-harm	Self- harm	Friends and acquainta nces	Those with a friend who self- harmed (and had lowest belief in their possibilitie s) were at the greatest

							risk of self-harm
	Cerel et al. (2005)	5,852 US 11–18 year olds (general/community)	Cross-sectional analysis of data from the National Longitudinal Survey of Adolescent Health	Suicidal ideation, suicide attempt	Suicide attempt, suicide death	Friends	Friends' suicide attempt and suicide death was related to an increased likelihood of own suicidal ideation and suicide attempt
	Claes et al. (2010)	150 Belgian high-school students with a mean age of 15.56 years (school)	Self-report questionnaires	Self-harm	Self-harm	Friends	Those who self-harm were more likely than were those who do not self-harm,

							to know other people who self-harm
	De Luca et al. (2012)	1,618 12– 19 year old Latina girls in the US (general/co mmunity)	Cross- sectional use of data from the National Longitudin al Study of Adolescent Health	Suicidal ideation, suicide attempt	Suicide attempt	Friends	Both suicidal ideation and attempts were associated with having a friend who had attempted suicide
	Ho et al. (2000)	2,704 high school students and 2,068 of their parents in Hong	Self-report questionnai res (with some informatio n from parents)	“Suicidal behaviour” (one of four items)	Suicide attempt, death	Peers	Peers of suicide attempters and deaths had higher prevalence of suicidal

		Kong (schools)					behaviour than those without exposure, and peers of attempters had higher prevalence than peers of those who died. Risk was higher among close friends than acquaintan ces
	Prinstein et al. (2001)	527 9–12th graders in the US (schools)	Self-report questionnai res	Suicidal ideation, behaviour	Talking about self- harm or	Peers	Own suicidal behaviour was



				(not specified)	suicide, suicide attempt		positively associated with friends' suicidal behaviour, particularly when accompanied by other stressors or depression
	Sidhartha and Jena (2006)	1,205 12–19 year old high-school students in India (schools)	Semi-structured self-report questionnaires	“Non-fatal suicidal behaviour”	Unspecified “suicide”	Friends	A history of suicide in friends was a risk factor for own suicidal behaviour
Negative findings							
LONGITUDINAL	Brent, Perper, J.,	166 “adolescent” friends and acquaintances of	Longitudinal (three	Suicide attempt	Suicide death	Friends	There was no difference

	and Canob bio (1996)	26 people who died by suicide, plus 175 matched controls in the US (general/commu nity)	time points) intervie ws and clinical assessme nt				at follow- up in suicide attempts between those with and without friends who died by suicide (despite higher baseline psychopath ology in the exposed group)
	Gilett a et al. (2013)	348 14–18 year- olds in the US (schools)	Cross- sectional data taken from the first 4	6 different self- injurious behaviours	Friends complet ed the same measure of self-	Friends	Adolescent s did not select as friends other adolescents

			waves of a larger self- report longitudi nal study		injuriou s behavio urs		with  similar  SSHB as them, nor did they increase their SSHB when their friends engaged in SSHB, although friends' depressive symptoms did predict increases in adolescents ' SSHB
CROSS-SECTIONAL	Brent et al.  (1992)	58 friends of 10 “adolescents” (mean age 17.5) who died by	Semi- structure d intervie	“Suicidal behaviour”  (ideation,	Suicide death	Friends and acquainta nces	There was no difference in suicide

		suicide and 58 controls in the US (general/community)	ws and questionnaires	plan, attempt)			attempts in friends of people who had died by suicide and unexposed controls (despite higher rates of depression in the former)
	Brent et al. (1993)	146 friends and acquaintances of 26 “adolescents” who died by suicide (mean age 17.8) and 146 matched controls in the US (general/community)	Self-report measures	“Suicidal behaviour” (ideation, plan, attempt)	Suicide death	Friends and acquaintances	Friends of those who died by suicide were no more likely than controls to make suicide

							attempts,  but  suicidality  (ideation with plans or attempts)  was higher.  This was  however,  mostly  accounted  for by  depression
	Watkins and Gutierrez (2003)	54 14–18 year old high-school students in the US (schools)	Self-report questionnaires	Suicidal ideation, “behaviours”	Suicide death	Friends	No significant differences were found between those who were or were not exposed to

							suicide in friends, on suicidal ideation or behaviours
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**Table 3.** Papers reporting on associations with multiple sources

	Authors	Sample (setting)	Design/m ethod	Child/adole scent behaviour	Behaviour of others	Refer ence group	Relevant findings
Positive findings							
LONGITUDINAL	Ali et al. (2011)	2,209 US 7– 12th graders (general/com munity)	Use of data from the National Longitudi nal Survey of Adolesce nt Health	Suicidal ideation, suicide attempt	Suicidal ideation, suicide attempt	Family or peers	Own ideation and attempts were positivel y associate d with family suicide attempts and with peer ideation and attempts, but the

							peer effects disappeared when environmental factors were controlled for
	Abrutyn and Mueller (2014)	US high-school students in grades 7–12. 20,745 in wave 1 (schools)	Use of data from 3 waves of National Longitudinal study of Adolescent Health	Suicidal ideation, attempt	Suicide attempt	Family or friends	Family members' suicide attempt at wave I increased girls' thoughts of suicide at wave II, and friends'



							suicide attempt at wave I increased girls' thoughts of and attempts at suicide, and boys' thoughts of suicide at wave II, although these effects have reduced by wave III
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	Bearman and Moody (2004)	13,465 US 7–12th graders (general/community)	Use of data from the National Longitudinal Survey of Adolescent Health	Suicidal ideation, suicide attempts	Suicide attempt	Family or friends	Friend or family suicide attempts in the last year increased own odds of suicidal ideation and friends' attempts increased own odds of suicide attempt
	Borowsky et al. (2001)	13,110 US adolescents in grades 7–12	Use of data from the National	Suicide attempt	Suicide attempt, suicide death	Family or friends	Friend or family suicide attempts

		(general/community)	Longitudinal Survey of Adolescent Health				or deaths generally predicted own suicide attempts (with variations across different genders and ethnic groups)
	Feigelman and Gorman (2008)	20,745 US youths grades 7–2 at wave I, 14,738 at wave II (1 year later) and 15,197 at wave III (6 years later)	Use of data from the National Longitudinal Survey of Adolescent Health	Suicidal ideation, attempt	Suicide death, attempt	Family or friends	A friend's suicide death was related to an immediate (within

		(general/community)					the first year) increase in suicidal thoughts and attempts, but this may only be short term. Family suicide attempts have some, albeit less impact
	Larsson and Sund (2008)	2,464 12–15 year olds in phase 1 and	Longitudinal self-report	Self-harm, suicide attempt	Suicide attempt, death	Friends, family	Only having a friend

		2,360 in phase 2 (1 year later), in Norway (schools)	measures (1 year)			or “others”	who attempted suicide was predictive of self-harm with or without suicidal intent, a year later
	Lewinsohn et al. (1994)	1,508 14–18 year olds in the US (schools)	Longitudinal (1 year) self-report questionnaires and diagnostic interview	Suicide attempt	Suicide attempt	Family or friends	The strongest predictor of suicide attempt was a recent attempt by friends

							(no significant effect found for family attempt), even after controlling for depression
	Nanayakara et al. (2013)	4,719 7th–12th grade US adolescents, mean age 16.7 years (general/community)	Use of data from waves I and II of the National Longitudinal Survey of Adolescent Health	Suicide attempt	Suicide attempt, death	Friends or family	Exposure to suicide attempt or death in friends or family in the last year represented the

							second biggest risk factor for future suicide attempts
	O'Conno r, Rasmuss en, and Hawton (2009)	737 15– 16 year old high-school students (500 at wave II) in Scotland (schools)	Self- report longitudi nal (6 month s) data, part of the CASE study	Self-harm	Self-harm, attitudes towards self-harm	Family or friends	Those who first self- harmed between waves reported that their friends held more positive views of self- harm, than did

							<p>non-self-harmers.</p> <p>Repeat self-harmers were more likely to have friends or family who self-harmed, and who were more positive about self-harm, compared to non-</p>
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							self-harmers
CROSS-SECTIONAL	Bjarnason and Thorlindsson (1994)	7,018 Icelandic 9–10th graders (schools)	Self-report questionnaire	Suicide attempt	Suicidal ideation, suicide attempt, suicide death	Friends or “others close to them”	Suicide attempts and deaths in friends positively correlated with own attempts, as did ideation to a lesser extent in females
	Borowsky et al. (1999)	11,666 American Indians and Alaskans in	Use of data from the National	Suicide attempt	Suicide attempt, suicide death	Family or friends	Friends’ suicide attempts or deaths

		grades 7–12 (schools and reservations)	American Indian Adolesce nt Health survey				were the most powerful risk factor associate d with own suicide attempts. Family attempts and deaths were also positivel y associate d with own attempts
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	Brent et al. (1990)	42 suicidal and 14 non-suicidal 13–19 year olds with affective disorder in the US (inpatient unit)	Self-report measures	Suicidal ideation, intent, threat, gesture or attempt	Suicidal ideation, attempts, death	Family , friends or “others”	“Suicidal” patients were more likely to have a family history of, or to have been exposed to, family suicidalit y than “non-suicidal” patients. Actual exposure to the family
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							suicidalit y was particula rly importan t
	Chan et al. (2009)	511 Chinese 15–19 year olds (general/com munity)	Use of youth sub- group interview data from a househol d survey on suicidalit y	Suicidal ideation	Suicide attempt	Family or friends	Suicide attempts in friends or family was a risk factor for own suicidal ideation (as was celebrity suicide and media reporting

							of suicide)
	Corder et al. (1974)	9 “adolescent” suicide attempters and their families, families of 2 who died by suicide and 10 non-suicidal matched controls and their families in the US (county mental health centre)	Questionnaires completed by adolescents (where possible) and their parents, and data taken from medical records	Suicide attempt, suicide death	“Suicide” (not specified)	Family or friends	Significantly more suicidal adolescents had a family/friend history of suicide than did non-suicidal controls
	De Leo and Heller (2004)	3,757 Australian year 10 and 11 students (schools)	Use of data from the CASE study	Self-harm	Self-harm	Family or friends	Own self-harm was positively

							associate  d with  self-  harm in friends or family (at least in females – insufficie nt numbers of males for analysis)
	Delibert o and Nock (2008)	64 self- harming 12– 19 year old and 30 non self-harming controls in the US	Self- report interview s and questionn aires	Self-harm	Self-harm	Family or friends	Those who self- harmed were more likely to have

		(general/community and outpatient mental health clinics)					family history of suicidal ideation (significantly) and self-harm (non-significantly) than those who did not self-harm. (Plus, 38.3% reported that they got the idea
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							from peers and 13.3% from the media)
	Fleming et al. (2007)	739 9–13 year olds in New Zealand (schools)	Use of data from the New Zealand Adolesce nt Health survey	Suicide attempt (in last 12 months)	Suicide attempt	Family or friends	Having friends or family who have attempte d suicide was associate d with an increase in own suicide attempts
	Gex et al. (1998)	9,268 15– 19 year old school and college	Use of data from the Swiss Multicent	Suicide attempt (although other	Suicide attempt	Friend s or relativ es	Suicide attempts in friends or



		students in Switzerland (schools and colleges)	er Adolesce nt Survey on Health	factors were questioned)			relatives were positively associated with own suicide attempts in the past year
	Grossman et al. (1991)	7,241 6th–12th graders in Alaska (schools)	Use of data from the Navajo Adolescent Health Survey	Suicide attempt	Suicide attempt, death	Family or friends	Own suicide attempts were related to having family or friends who attempted or died by

							suicide.  Friends  attemptin  g suicide  was  more  strongly  associate  d with  own  attempt  than  family's  attempts  or deaths
	Hargus et al. (2009)	5,717 15– 16 year olds in England (schools)	Use of data from the survey used in Hawton et al. (2002)	Thoughts of self-harm, self-harm with and without intent to die	Self-harm	Family or friends	Self- harm in friends or family differenti ated between various

							<p>groups</p> <p>(e.g.,</p> <p>those</p> <p>with and</p> <p>without</p> <p>suicidal</p> <p>thoughts;</p> <p>those</p> <p>with self-</p> <p>harm</p> <p>with</p> <p>intent to</p> <p>die and</p> <p>those</p> <p>with</p> <p>thoughts)</p> <p>. In</p> <p>males,</p> <p>self-</p> <p>harm of</p> <p>peers</p> <p>differenti</p> <p>ated</p>
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							those with self- harm without intent to die and those with thoughts. There were also strong associati ons between self- harm groups and self- harm in others
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	Harkavy - Friedma n et al. (1987)	380 9th–12th graders in the US (schools)	Self- report questionn aires	Suicidal ideation, attempt	“Suicidal behaviour” (not specified)	Family or peers	Those with ideation or attempts reported more suicidal behaviou r in their family than those without but were no different to each other. Those with own attempts reported
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							more suicidal behaviour r in friends than did those with ideation, who reported more than those with neither
	Hawton et al. (2002)	6,020 mostly 15–16 year old high- school students in England (schools)	Self- report questionn aires	Self-harm, suicidal ideation	Self-harm	Family or peers	Own self- harm in the previous year was related to

							that of peers and family members
	Jegannat han and Kullgren (2011)	320 15– 18 year olds in Cambodia (schools)	Self- report questionn aires	“Suicidal expression”	Suicide attempt, death	Family , partner s, friends	Own suicidal expressio n was associate d with suicide attempt or death in immediat e family, romantic partners or friends. Controlle d for gender,

							only girls  were  more  likely to have serious suicidal expressio n when exposed to suicidal behaviou r in partners and friends
	Laederac h et al. (1999)	148 15– 19 year olds admitted to an emergency department following	Interview s, structure d questionn aires	Suicide attempt	“Suicidal behaviour” (not specified)	Family or friends	An associati on was found between own



		suicide attempt in Switzerland (general hospital)					suicide attempts and suicidal behaviour in friends or family, and this was considered a main risk factor
	Larsson and Ivarsson (1998)	191 11–18 year old emergency inpatient admission in Sweden (hospital)	Clinical assessment, diagnosis and self-report questionnaires	Suicide attempt	Suicide attempt, death	Family or friends	Significantly more of those with repeated suicide attempts

							had family or friends who had attempted or died by suicide, than did non-attempters
	Mars, Heron, Crane, et al. (2014)	4799 16 year-olds in England (general/community)	Cross-sectional data taken from a population-based birth cohort study. Mostly	Self-harm with and without suicidal intent	Self-harm in friends, mother and father, suicide attempt in parents	Friend s or parents	Self-harm in friends and mothers was strongly associated with own suicidal

			self- report, some maternal- reports.				self- harm, less so with non- suicidal self- harm. Self- harm in fathers and parents' suicide attempts were associate d with own suicidal self- harm, but
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							not non-suicidal
	McMahon et al. (2013)	3,881 Irish high-school pupils aged 15–17 years (schools)	Self-report questionnaires (part of the CASE study)	Self-harm	Self-harm, suicide attempt	Friends or Family	Strong associations found between life-time history of self-harm and self-harm in friends or family, and weaker associations found with suicide

							in friends  or  family.  Three quarters of those who self- harmed reported -harm in others, and those who reported exposure were three times more likely to self- harm than
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							those with no exposure
	McMahon et al. (2010)	3,881 15– 17 year old Irish high- school students (schools)	Use of data from the CASE study	Self-harm	Self-harm	Family or friends	Own self- harm was positivel y associate d with friends’ self- harm for both genders, and for girls only, own self- harm was associate

							d with self- harm in the family
	O'Conno r et al. (2014)	3,596 15– 16 year old high-school students in Northern Ireland (schools)	Self- report surveys (adapted from CASE)	Self-harm	Self-harm	Family or friends	Having family or friends who had self- harmed was associate d with own self- harm in both boys and girls. 13.3% and 23.2% reported

							that the self-harm or suicide attempt of family or friends (respectively) influenced their own self-harm
	O'Connor, Rasmussen, Miles, et al. (2009)	2008 15–16 year old high-school students in Scotland (schools)	Self-report questionnaire (adapted from CASE)	Self-harm	Self-harm, attitudes towards self-harm	Family or friends	Own self-harm was positively associated with family or



							friends' self-harm in girls, and family self-harm in boys. Group norms (more positive views) were also associated with own self-harm in boys
	Portzky et al. (2009)	32 informants of 19 (15–19 year old) suicide deaths	Psychological autopsy, semi-	Suicide death (plus ideation and	“Suicidal behaviour” (not specified)	Family or friends	Those who died by suicide

		and 35 adolescent psychiatric controls (including people with suicidal ideation and attempts) in Belgium (psychiatric admissions)	structure d interview s (cross- sectional)	attempts in controls)			had more suicidal behaviour r in the family than controls (non- significa nt), and more exposure to suicide in friends and the media (significa nt)
	Portzky et al. (2008)	4,431 Belgian and 4,458 Dutch 15– 16 year old	Self- report questionn aires	Self-harm, suicidal thoughts	Suicide	Family or friends	Suicide in the family or close

		high-school students (schools)					friends was positivel y associate d with own self- harm. Belgian students were at a higher risk for both self- harm and suicidal behaviou r in family or friends and their own self- harm and
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							suicidal thoughts
	Rew et al. (2001)	8,806 7th, 9th, and 11th graders in the US (schools)	Secondar y analysis of data from the Minnesot a Adolesce nt Health Survey	Suicide attempt	Suicide attempt, death	Family or friends	There were significa nt positive relations hips between own suicide attempt and that of family or friends. The highest rates of both suicide attempt

							and deaths in the family, and own suicide attempt, were in Hispanic girls
	Rothera m-Borus et al. (1994)	138 gay and bisexual 14– 19 year old males in the US (community centre for gay youths)	Self- report semi- structure d interview s	Suicidal ideation, attempt	Suicide attempt	Family or friends	Suicide attempter s were more likely to have friends or relatives who have attempte d suicide

							than were non- attempter s
	Rothera m-Borus et al. (1996)	1,616 11– 17 year old consecutive attendees at a crisis service in the US (crisis service)	Self- report measures complete d at interview	Suicidal thoughts, plans, attempt	Suicide attempt, death	Family or friends	Suicide attempter s were around twice as likely as non- attempter s to report having a family member who attempte d suicide, but there was no

							difference for peer suicide attempts
	Rubenstein et al. (1998)	272 10–11th graders in the US (schools)	Self-report questionnaire	“Suicidality” (based on harming or attempt to kill oneself)	Suicide attempt, death	Family or friends	Suicidal behaviour in the family or friends was significantly associated with own suicidality
	Thompson et al. (2009)	10,424 7th–12th graders in the US (schools/general)	Use of data from the National Longitudinal	Suicide attempt	Suicide attempt, death	Family or friends	Risk indicator for own (first) suicide attempt

			Survey of Adolesce nt Heath (three time points over 7 years)				included  having  family or  friends with a history of suicide attempt or death by suicide
	Thomps on and Light (2011)	10,828 7th– 12th graders in the US (schools/gene ral)	Use of data from the National Longitudi nal Survey of Adolesce nt Heath (three time	Suicide attempt	Suicide attempt, death	Family or friends	After 1 year, own suicide attempts were positivel y related to friends' suicide



			points over 7 years)				attempts or deaths and family suicide attempts. After 7 years, own suicide attempt was positivel y related to friend or family suicide attempts
	Tomori (1999)	4,700 14– 19 year old Slovenian high-school	Self- report questionn aires	Suicide attempt	Suicide attempt, death	Family or close friends	Significa ntly more of those who had

		students (schools)					attempted suicide themselves had been exposed to suicide attempts or deaths in their families or close friends
	Wang et al. (2011)	577 15–19 year old Taiwanese high-school students (schools)	Self-report questionnaires	Suicidal ideation	Suicidal ideation	Parents or peers	More suicidal ideation was reported in those whose mothers (but not

							fathers)  or peers  had  suicidal ideation, than those whose mothers or peers did not. Peer suicidal ideation was a significa nt risk factor for own suicidal ideation
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	Wichstro m and Hegna (2003)	2,924 7th– 12th grade Norwegian high-school students (schools)	Longitudi nal self- report questionn aires (three time points over 7 years)	Suicide attempt	Suicide attempt, death	Family or friends	Suicide attempt or death among family or friends was one of the (many) risk factors for own suicide attempt
Negative findings							
CROSS-SECTIONAL	Razin et al. (1991)	33 12–17 year old Hispanic girls admitted to a paediatrics unit for SSHB and 15 non- suicidal	Semi- structure d interview s with adolescen ts and	SSHB	“Suicidal behaviour/m odels” (not specified)	Mothers and “models ” (not specifie d)	Both groups reported similar numbers of suicidal models

		matched controls, in the US (general hospital)	their mothers				(and only one named her mother), although more mothers of the suicidal group had made attempts than mothers of controls (non- significan t) and reported more suicidal
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							models (non-significant)
	Tomori and Zalar (2000)	3,687 14– 19 year old Slovenian high-school students (schools)	Self- report questionnaires	Suicidal ideation, attempt	Suicide attempt, death	Family or close friends	No significant t difference s were found between those who had and had not attempted suicide, with respect to suicide attempts or deaths among family or

							close friends
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**Table 4.** Qualitative papers

Authors	Sample (setting)	Design/method	Adolescent behaviour measured	Behaviour of others	Reference group	Relevant findings
Beekrum et al. (2011)	10 14–17 year old South African females of Indian descent (general inpatients)	Focused interviews	“Non-fatal suicidal behaviour”	Suicide attempt, suicide death	Family	Family suicide death or attempted suicide was an influencing factor on own suicidal behaviour. Explicit reports of observed positive outcomes from family or



						friends' suicidal behaviour
Herrera et al. (2006)	8 Nicaraguan 12–19 year old girls admitted to hospital following suicide attempts (hospital)	In-depth interviews	Suicide attempt	Suicide	Friends or relatives	Some participants reported that suicide by friends or relatives was a triggering event for their suicide attempts
Orbach et al. (1981)	11 6–12 year old children who had attempted or threatened suicide, in Israel (schools)	Analysis of intensive interviews, therapeutic meetings, observation, interviews with family	Suicide threat, attempt	Suicidal ideation, attempt	Parents (mostly mothers)	The majority of the children had a suicidal parent – usually the mother –

		and teachers and school records				who had in some cases openly expressed a wish to die, offered methods of suicide or expressed a wish that the child had never been born, for example
Tingey et al. (2014)	22 13–19 year-old Apache Indians in the US (general/communit y)	Up to five semi- structured interviews held over the course of a year	Suicide attempt	Suicide attempt	Friends or family	Imitation of others’ suicidal behaviour was a factor in adolescents , own, and

						they were conscious of/concern ed about others perceiving them as having copied their behaviour
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**Figure 1.** Stages of review process.