Validation, emotion dysregulation and self-harm Results from an anonymous large-scale Internet-based study of young people

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Research Article

Keywords: Emotion dysregulation, validation, self-harm, Biosocial Theory

Posted Date: February 23rd, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-237373/v1>

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Abstract

Background: Self-harm is a major public health concern and it is particularly prevalent among adolescents. The functions of self-harm are diverse, but can be divided into interpersonal and intrapersonal. Linehan's Biosocial Theory suggests that there is a transaction between the individuals' emotional vulnerability and an invalidating environment, which in turn results in maladaptive and often self-destructive behaviors. This paper examines the associations between self-harm, emotion dysregulation and perceived validation/invalidation.

Methods: A total of 1910 (*M* age = 17.2, 86.9% female gender identity) respondents completed questionnaires in an anonymous Web-based survey. We used well-established questionnaires for assessing self-harm and emotion dysregulation, and for the assessment of perceived validation/invalidation we used a novel instrument "Responses to my Emotion, Thoughts and Actions, REMTA".

Results: Validation/invalidation correlated with self-harm and to an even larger extent to emotional dysregulation. A large and significant part of the association between self-harm and perceived validation/invalidation was also mediated by emotion regulation. Validation/invalidation from family members had a higher impact on both self-harm and emotion dysregulation than from non-relatives. Those reporting high levels of invalidation also reported significantly more difficulties in emotion regulation.

Conclusions: The present study contributes to the understanding validation in the etiology of self-harm. The results also provide additional support for the Biosocial Theory and has implication assessment and treatment of self-harm.

Trial registration: The study was approved by the Regional Ethics Board in Stockholm (Dnr. 2015/815-31/5).

Introduction

Self-harm has been gaining increasing scientific interest in the past decade. It is associated with considerable suffering and can lead to significant costs for the health care system. Accordingly, increased knowledge and treatment development are important [1, 2]. Self-harm is often inflicted with a knife, needle or razor on areas such as arms, legs or abdomen [3–5]. The prevalence of self-harm in adolescence varies between different studies, depending in part upon how it is measured. In this paper, the broader definition used in the NICE guidelines will be used: "Self-poisoning or self-injury, irrespective of the apparent purpose of the act". A large community-based study in Sweden found that 35.6 % of adolescents (15–17 y) reported at least one episode of self-harm during the past year [6]. Self-harm has proven to be a stronger predictor of suicide attempts than a past history suicidal behavior [7, 8] and is a serious threat to physical health and psychological functioning [4].

Self-harm is increasingly understood as a reflection of a person's emotional distress [9, 10]. Family processes linked to the onset and maintenance of self-harm have also attracted attention [11–13]. Young people's reported experiences of having been maltreated in the form of physical or sexual abuse during childhood increases the likelihood of developing self-harm behavior, especially if they have been maltreated by primary caregivers [14, 15]. A systematic review by Liu and colleagues found that childhood maltreatment including emotional abuse and neglect were associated with self-harm, even in non-clinical samples [15].

During the transition into adulthood, peer and partner relationships become increasingly important for emotional development [16]. A longitudinal study by Yen and colleagues showed that perceived peer invalidation predicted self-harm in a high-risk sample [17]. In another longitudinal cohort study 2127 adolescent girls were assessed for interpersonal risk factors and self-harm onset from age 13 to 17. Frequency of peer victimization and negative beliefs about peers were both predictive of later onset of self-harm [13].

It is of high importance to clarify the etiology and underlying factors that lead to self-harm, as these can inform prevention and intervention strategies [18]. Researchers have become increasingly interested in young people's subjective psychological and emotional experiences of invalidation such as feeling misunderstood, questioned and alienated, and the association of these experiences to self-harm. A total of 38 adolescents enrolled in a DBT program were assessed for treatment outcome during a six-months treatment period. Robust associations between parental invalidation/validation and self-harm were found at baseline [19].

Emotion dysregulation is understood to play a critical role in the development of psychopathology generally and in the onset and maintenance of self-harm in particular [9]. Persistent and severe difficulty in regulating emotions is seen as the primary contributor to self-harm and suicide attempts [9, 10]. These behaviors are developed as means to manage pervasive emotion dysregulation in the absence of other coping strategies [9, 10]. Evidence for the regulatory properties of self-harm have been summarized by a systematic review [3]. Acute negative affect often precedes self-harm and reduced negative affect is a common consequence immediately after an episode. Also, those who regularly self-harm often anticipate reduced emotional distress as an immediate outcome [3] although shame and other negative emotions relating to having self-harmed may be longer-term emotional consequences [17].

The experience of validation and subsequent emotional dysregulation: The Biosocial Theory

The Biosocial Theory developed by Linehan [20] is the core etiological theory of Borderline Personality Disorder (BPD) in its leading evidence-based treatment, Dialectical Behavior Therapy (DBT) [21]. As such, it explains the emergence and maintenance of BPD symptoms, including emotion dysregulation at the core of BPD [20]. The Biosocial Theory is transactional, wherein a biological predisposition to emotional vulnerability (a sensitive temperament) is uniquely and adversely affected by an invalidating environment

[20]. Emotional vulnerability is assumed to be present at birth (temperament) with neurological correlates therein [20, 22]. The experience of emotional sensitivity means that these individuals' affective arousal is heightened more quickly than less sensitive individuals. Once elevated it also takes a longer time to return to emotional baseline [20, 22]. Accordingly, in the presence of invalidation, remaining emotionally regulated is more challenging for emotionally sensitive individuals.

The other key component of the Biosocial Theory is an invalidating environment, characterized by intolerance towards expression of private emotional experiences; the person is met with unpredictable, inappropriate or extreme responses. Emotional expressions can also be punished or trivialized, and it is not uncommon for the individual to be blamed [17]. Such an environment signals to the person that they are not acceptable or important and that there is no support from key others in the home environment or different contexts such as school or peer groups [20, 22, 23]. Linehan states that the consequences of growing up in such an environment, among other things, is that the person does not develop the ability to recognize, name, regulate and tolerate strong emotional reactions. Coupled with distress in the form of elevated emotional arousal the individual is trapped between emotional inhibition and emotional outbursts that are ineffective and "self-invalidating" [20]. After periods of unmodulated strong negative affect akin to "emotional hell" [20] compounded by environmental invalidation, dysfunctional emotion regulation efforts such as self-harm are utilized as a form of escape. This effectively redirects negative affect in the short term, which is why self-harming behaviors tend to persist [20].

A validating approach means that the person's expression about emotional experience is met with interest, attention, understanding, acceptance and authenticity [17]. A validating approach does not aim to prove or to disprove validity of experience. A validating response gives present and authentic attention to emotional experience in order to facilitate acceptance of the emotion and importance of the person. Linehan has identified six levels of validation; 1) paying attention. That is, being present, staying "awake" and disengaging from judgmental communications, 2) accurate reflection, by summarizing what a person is sharing and taking a non-judgmental stance 3) Mind-reading. That is, stating the unarticulated, reading a person's behavior and summarizing what they might be thinking or feeling, 4) Understanding a person's behavior in terms of their history or biology, and reflecting it as such 5) Normalizing and recognizing an emotional reaction that is logical and that anyone would have given the circumstances, 6) Showing radical authenticity [20].

In DBT validation is a core therapeutic component which is regarded as being very potent, as it strengthens relationships, helps with managing emotions, and assists the person in therapy to feel understood and accepted, rather than being solely encouraged to change [20]. Validations level one and two corresponds to what we usually call empathy, levels three and four resembles empathic approach as it is used in general psychotherapy, and levels five and six are distinctive to DBT. The different levels of validation are important to separate as not every behavior can be validated on all levels but most behaviors can be validated at some level. Moreover, the levels of validation are hierarchically organized and each level depends to a certain extent upon one of the previous ones. Validation is implicit in many

therapies, however in DBT there is an explicit focus on validation as a treatment strategy, as well as how and what to validate [24].

To date the use of the specific levels of validation and their impact on emotion regulation has been empirically examined to a limited extent. The *Dialectical Behavior Therapy- Validation Level Coding Scale*, DBT-VLCS [25] has been used to examine how the patients positive and negative affects changed over the treatment course as a result of therapists' use of different validation levels. An increased frequency of therapists' use of high levels of validation was associated with a reduced level of negative affect reported by the clients. Also, an increase in frequency of therapists' use of higher levels of validation increased the client's positive affects, whereas a higher frequency of lower levels of validation were associated with clients reporting a decrease of positive affect. The authors argue that in light of these findings it is reasonable that higher levels of validation are a prerequisite for emotional change at least in a psychotherapy setting [26].

Emotion dysregulation has been described as a state of high negative/ aversive arousal that potentially can disrupt cognitive and behavioral self-management [23]. This in turn causes the person to lose track of long-term goals [23]. Difficulties in managing the intensity and duration of negative emotions such as sadness, anger or fear, increases the likelihood of the person using maladaptive strategies like escape, avoidance or impulsive behaviors [22]. The different systems or components that are included in emotion regulation are physical arousal, facial expression, behavior, cognitive evaluation, motivation, goal orientation, and subjective experiences [9, 27, 28].

Given the support for various aspects of the Biosocial Theory, it is logical to assume an indirect link between the experience of invalidation and self-harm via emotion dysregulation. Similar relationships have been examined empirically in different studies, however instead of validation/invalidation, concepts like family climate, emotional abuse and neglect, alienation and maltreatment have been utilized. Guérin-Marion and colleagues studied 57 individuals who self-harmed and a matched control-group. They explored the pathway between parental maltreatment/ perceived alienation and self-harm and found poor emotional clarity to be a significant mediator [14]. Another study with 99 adolescent girls admitted to a psychiatric ward showed that relational problems within the family were directly associated with self-harm and indirectly related to self-harm through emotion dysregulation [16].

The relation between invalidation and self-harm and the assumed mediating role of emotion dysregulation has commonly been studied in clinical samples with observational data assessed by clinicians. To the best of our knowledge there is no self-report instrument that captures respondents experienced validation/invalidation within multiple relationships in a non-clinical sample.

The general aim of the present study was to examine and strengthen the knowledge about the pathway between experienced validation/ invalidation and self-harm, taking emotion dysregulation into account and using the novel self-assessment "*Responses to My Emotions, Thoughts and Actions*" to assess perceived validation/invalidation.

The specific research questions were:

1. What is the nature of the relation between perceived validation/invalidation, emotion dysregulation and self-harm?
2. Does the relation between perceived validation/invalidation, emotion dysregulation and self-harm vary across the different relationships, such as relation with parents, siblings and friends?
3. Is there any level of validation/invalidation that seems to have a clearer impact on self-harm and emotional dysregulation?

Method

Design

The present study had a cross-sectional design and was approved by the Regional Ethics Board in Stockholm (Dnr. 2015/815 – 31/5). Adolescents and young adults (15–20 years), with or without self-harm over the past six months were invited to participate. Data with unreasonable short response time (e.g., answering 10 items within 8 seconds) were considered neither reliable nor valid and hence deleted. Figure 1 illustrates the final number of respondents.

Note

DSHI-9r = Deliberate Self-Harm Inventory, DERS = Difficulties in Emotion Regulation Scale, REMTA = Responses to my Emotions, Thoughts and Actions

Procedure

We conducted a web-based survey. To estimate the response time, ensure that the formulations of the questions were adapted to the age group and to collect suggestions for improvement we started with a minor pilot-study. Information about the survey was spread through different platforms for social networking, such as Instagram, Facebook, and the Internet platform “webbstudie.se”. The link was then spread and shared through likes and hashtags. Relevant charities, associations, foundations, care units and authorities also provided information about the study through their homepages. As a next step a professionally designed webpage was created www.hsop.se/ki/sjalvskada. The same platforms as mentioned above distributed banners which led to even more participants. Cinema tickets were sent to hundred randomly chosen respondents, to provide incentive for participation.

Through the link, respondents could access information about the study, ways of contacting the researchers, the voluntary and anonymous nature of study, and the possibility to discontinue their participation at any time. They were also informed that no identifying information would be required or saved, and that their IP-addresses would be erased. In line with the recommendation from the Ethics Review Board we provided information about where help/support for self-harm were available. This information was provided at the beginning and at the end of the survey.

The average response time was 30 minutes. To counteract potential order effects the questionnaires were presented randomly. For ethical reasons entire questionnaires pertaining to alcohol, drug use and sexually destructive behaviors could be skipped, if the participants anticipated triggering effects. Responders who did not report any occurrence of such behaviors during the past six months would automatically not be presented to the remaining questions within each area.

Instruments

Deliberate Self-Harm Inventory: Nine-Item version (DSHI-9r) is a self-assessment modified, constructed and validated by Gratz [29] and later adjusted for adolescents by Lundh and colleagues [30]. Nine different examples of common self-harm behaviors (i.e. cutting, burning, scratching, hitting oneself) are presented and the respondent is asked to rate how many times she/he deliberately engaged in any of these during the past six months. A Likert-scale is used ranging from zero (never) to six (more than five occasions). Responses are summed to a total score, yielding a maximum of 54 points. DSHI-9r has good psychometric properties [30, 31] and good test–retest reliability [32]. Chronbach's Alpha in the present study was .80.

The Difficulties in Emotion Regulation Scale (DERS) is a self-assessment of with multidimensions of emotion regulation/emotion dysregulation. In the present study the short version (20 items) was used. The 20 statements are presented and the respondent has to consider how often s/he make use of specific strategies; almost never = 1, sometimes = 2, about half the time = 3, most of the time = 4, or almost always = 5. The DERS has showed high internal consistency, $\alpha = .93$ [29], and in the present study it was .84.

Responses to My Emotions, Thoughts and Actions (REMTA) is a novel self-assessment evaluating the presence and absence of validation within an individuals' social network (Linehan, Liljedahl & Adrian) (see appendix). The structure resembles *The Network of Relationships Inventory: Behavioral Systems Version* NRI-BSV [33], where specific relationships are examined with respect to different facets both negative and supportive. In *REMTA*, the respondent is presented to a matrix of relationships by qualities. There are eight different relations; mother-figure, father-figure, sibling, relative, boy/girlfriend, same-sex friend, different-sex friend and extra person. First the respondent is asked to identify a person from each of the mentioned categories and write down the initials to enhance memory and reliability of recall. The statements are on a five-point Likert-scale ranging from "not at all true" to "always true" and represent the aforementioned six levels of validation and corresponding invalidation. As an example, the following is a statement of validation at level six "This person recognizes me for who I am. They take me seriously and respect me as an important person." The following is a statement that represent invalidation at level one "When I need this person to listen, I am ignored". The score for each relation is summed and then divided by six to obtain an average. Further a total score for validation is calculated by adding the average score for each relationship and then dividing that score by the amount of relationships the respondent has stated, the same approach is used for invalidation.

Statistical analysis

We used descriptive analysis, Pearson’s correlation coefficient and t-tests to analyze data. For the mediation path analysis, we used PROCESS for SPSS 3.5 [34]. We conducted two separate mediation analyses to examine whether a shared variance between the independent variables (REMTA, validation and invalidation sub-scales) and the dependent variable (DSHI-9r) was partly accounted for by a third intervening variable (DERS).

Results

The background information for the participants is presented in Table 1. The mean age of the sample was 17.2 years (SD = 1.54) and the majority were of European origin 92.7%. The demographic characteristics are based on the participants who had responded to the Difficulties in Emotion Regulation Scale (DERS) and Responses to my Emotions, Thoughts, and Actions (REMTA). Since we were interested in comparing responders with and without self-harm, and not everyone had answered DSHI-9r, we ended up with a total sample of 1910 participants.

Table 1

Demographic characteristics of the participants

Demographic Data	<i>n</i> (%)	Demographic Data	<i>n</i> (%)
Biological sex		Occupation	
Female	1791 (93.76)	Student	1596 (85.25)
Male	92 (4.82)	Unemployed	41 (2.19)
Other	27 (1.41)	Sick leave	63 (3.36)
Sexual identity		Employed or internship	117 (6.25)
Heterosexual	1083 (56.70)	Other	55 (2.93)
Homosexual	103 (5.39)	Living Conditions	
Bisexual	384 (20.10)	Alone	112 (5.98)
Pansexual	205 (10.73)	With parent(s)	1509 (80.65)
Other	135 (7.07)	With foster parent(s)/institution	46 (2.45)
Gender identity		With friend(s) or partner	144 (7.69)
Female	1659 (86.86)	Other	60 (3.21)
Male	108 (5.65)	Current psychiatric diagnosis	
Transgender	12 (0.63)	Yes	673 (35.24)
Genderqueer	43 (2.25)	No	1186 (62.09)
Mixed	36 (1.88)	Not reported	51 (2.67)
Other	52 (2.72)	Drugs for mental health problems	
Residence		Yes	457 (23.93)
Major city in Sweden	639 (34.15)	No	1410 (73.82)
Minor city	461 (24.63)	Not reported	43 (2.25)
Rural	765(40.88)	Ongoing treatment for mental health problems	
Abroad	6 (0.32)	Yes	562 (29.42)
		No	1308 (68.48)

With respect to REMTA we decided to include participants that had stated/identified one relationship or more. Total scores for validation and invalidation are calculated by averaging the eight different relationships listed on the measure. To capture the significance of the quantity of relationships we correlated the total number of relationships for each participant with the scores for REMTA (invalidation and validation subscale), DERS and DSHI-9r. For the *number* of relationships on the validation subscale none of the correlations were statistically significant. For the invalidation subscale, however there was a weak positive but significant correlation between *number* of relations and level of perceived validation ($r = .07, n = 1902, p < .01$).

What is the nature of the relation between perceived validation/invalidation, emotion dysregulation and self-harm?

The relationship between total perceived validation and emotion dysregulation was investigated using Pearson product-moment correlation coefficient. There was a negative correlation between the two variables ($r = -.28, n = 1902, p < .001$). We also found a significant, negative correlation between perceived validation and self-harm ($r = -.11, n = 1492, p < .001$). There was a positive association between perceived invalidation and emotion dysregulation ($r = .35, n = 1902, p < .001$). The correlation between perceived invalidation and self-harm was positive and statistically significant ($r = .22, n = 1401, p < .001$).

The mean and median were virtually identical, and we splitted the perceived validation, and perceived invalidation based on median. As demonstrated in Table 2, participants reporting a higher degree (≥ 3.4) of perceived validation report a lower proportion of self-harm, scored lower on DSHI-9r, and DERS than those reporting a lower degree of perceived validation (< 3.4). The opposite is true for responders reporting a higher degree of perceived invalidation (≥ 2.3). That is, they report a higher proportion of self-harm as well as higher on the DSHI-9r and DERS. There was a statistically significant difference in level of emotion dysregulation between responders reporting low and high level of perceived validation ($t(1900) = 10.122, p < .001$), with a medium effect size, (Cohen's $d = .47$). The difference between those reporting high or low perceived invalidation was also significant ($t(1828) = -9.290, p < .001$), with a large effect size, (Cohen's $d = .940$). A Chi-square test for independence (with Yates Continuity Correction) indicated a small but statistically significant association between occurrence of self-harm and level of perceived invalidation, $\chi^2(1, n = 1927) = 27.81, p < .001, \phi = .12$. Also, the level of perceived validation was associated with reported occurrence of self-harm, $\chi^2(1, n = 2015) = 70.76, p < .001, \phi = -.19$.

Table 2

Percentage, Mean and Standard Deviations of the outcome

	History of Self-harm <i>n (%)</i>	DSHI-9r scores <i>M(SD)</i>	DERS scores <i>M(SD)</i>
Over all sample			
Validation			
High	715 (66.8)	17.83(12.50)	116.26(27.56)
Low	787 (83.3)	20.37(12.05)	128(23.57)
Invalidation			
High	123 (93.9)	24.15(12.90)	142.56(20.81)
Low	1303 (72.6)	18.65(12.16)	120.35(26.12)

Note. DSHI-9r = Deliberate Self-Harm Inventory, DERS = Difficulties in Emotion Regulation Scale

The relationship between perceived validation and frequency of self-harm was mediated by emotion dysregulation. As Fig. 2 illustrates, the regression coefficient between perceived validation and emotion dysregulation was statically significant, as was the regression coefficient between emotion dysregulation and frequency of self-harm. The indirect effect was $(-5.59) \times (.25) = -1.41$. We tested the significance of this indirect effect using bootstrapping procedures. Unstandardized indirect effects were computed for each 5,000 bootstrapped samples, and the 97% confidence interval was computed by determining the indirect effect at the 2.5th and 97.5th percentiles. The bootstrapped unstandardized indirect effect was $-.08$ and the 95% confidence interval ranged from $-.10$ to $-.06$. Thus, the indirect effect was statistically significant. The proportion of the total effect of perceived validation on self-harm that operates through emotion dysregulation was 66.4%.

The same method was used to examine if or to what extent the relationship between perceived invalidation and frequency of self-harm was mediated by emotion dysregulation (Fig. 3). The indirect effect was $(8.37) \times (.24) = 2.02$ and the bootstrapped unstandardized indirect effect was $.12$ with a 95% confidence interval ranging from $.09$ to $.14$, hence statically significant. For relationship between perceived invalidation and the frequency of self-harm, 55.8% of the effect was explained by the mediation of emotion dysregulation.

Does the relationship between perceived validation/invalidation, emotion dysregulation and self-harm vary across the different relationships?

The correlations between emotion dysregulation and perceived validation are statistically significant and negative for all relationships, but of weak strength, (see Table 3), and the reverse is true for perceived invalidation. Looking at self-harm the results are less unambiguous. The correlations between self-harm

and perceived invalidation are all statistically significant. However, the correlation between self-harm and perceived validation, are only statistically significant for half of the relationships. The overall patterns seen are that validation and invalidation correlates to a higher degree with emotion dysregulation than self-harm. It also appears that perceived validation and invalidation in family relationships covaries to a greater extent with emotion dysregulation and self-harm than relationships with non-relatives.

Table 3

Pearson's correlation

	DERS	(n)	DSHI-9r	(n)
Validation from;				
Mother	-.25**	1896	-.12**	1486
Father	-.23**	1862	-.13**	1460
Sibling	-.21**	1769	-.07**	1390
Relative	-.23**	1752	-.07**	1371
Partner	-.15**	1533	-.05	1212
Friend same sex	-.11**	1867	-.02	1463
Friend different sex	-.13**	1679	-.05	1316
Extra person	-.11**	1346	-.03	1057
Total	-.28**	1902	-.11**	1492
Invalidation from;				
Mother	.29**	1827	.16**	1413
Father	.30**	1789	.18**	1384
Sibling	.27**	1691	.16**	1309
Relative	.29**	1656	.18**	1275
Partner	.21**	1467	.11**	1137
Friend same sex	.18**	1784	.11**	1380
Friend different sex	.23**	1590	.14**	1225
Extra person	.17**	1314	.12**	1015
Total	.35**	1902	.22**	1401

Note. DSHI-9r = Deliberate Self-Harm Inventory, DERS = Difficulties in Emotion Regulation

Scale, **p <.01, *p <.05

Is there any level of validation/invalidation that seem to be have a clearer impact on self-harm and emotional dysregulation?

The correlations between the different levels of validation/ invalidation and self-harm as well as emotion dysregulation, are presented in Table 4. For the validation levels all the correlations are negative, and significant for DERS, but not significant for all levels of DSHI-9r. Level two and six show the strongest relation to both emotion dysregulation and self-harm. Regarding the levels of invalidation, the correlations are all positive and of overall greater strength than for the validation levels. Some of the correlations between invalidation levels and emotion dysregulation are even approaching medium effect sizes.

Table 4

Pearson's correlation

	DSHI-9r	DERS
Validation level		
1	-.06	-.25**
2	-.12**	-.29**
3	-.04	-.24**
4	-.07*	-.24**
5	-.03	-.22**
6	-.13**	-.28**
Invalidation level		
1	.08*	.17**
2	.05	.16**
3	.08*	.23**
4	.16**	.30**
5	.17**	.27**
6	.19**	.29**

Note. DSHI-9r = Deliberate Self-Harm Inventory, DERS

= Difficulties in Emotion Regulation Scale, **p <.01, *p <.05

Discussion

The major findings from this study are that perceived validation as well as perceived invalidation measured by the novel instrument REMTA are correlated with self-harm and emotion dysregulation. The correlations are of different magnitude when looking separately at different relations. The overall patterns seen are that validation and invalidation correlate to higher degree with emotion dysregulation than self-harm. It also appears that perceived validation and invalidation in family relations covaries to a greater extent with emotion dysregulation and self-harm than relations to non-relatives. Pair-wise comparisons reveal that responders experiencing a high level of invalidation score significantly more difficulties in emotion regulation than responder reporting low levels of invalidation. Also, a significant part of the relation between perceived validation/invalidation and self-harm is explained by the mediation of emotion dysregulation.

Prior research

Validation has been conceptualized and measured in different ways, which partially complicates comparisons. Validation/invalidation is somewhat overlapping with other constructs (e.g., social support, attachment, alienation, family functioning). However, perceived invalidation as a concept has certain unique dimensions in terms of communicating inaccuracy, misattributing feelings, discouraging negative emotions, and oversimplifying problem solving [35]. It also has a unique role in the etiology of borderline personality disorder, which has self-harm as a diagnostic criteria [36] A systematic review concluded that there is a lack of coherence regarding the conceptualization of invalidation, and that it is common that studies, for example, use measurements of harsh parenting in instances where invalidation was intended [35].

Drawing upon previous research, a significant correlation between self-harm and perceived parental invalidation was expected. In a large community-based longitudinal study, family invalidation was significant related to the occurrence of self-harm in Chinese adolescents [37]. As in the present study a newly developed invalidation scale was utilized based on Linehan's theoretical concept [20]. However, in the Chinese study, family invalidation was not related to the frequency of self-harm, which was the case in our study. In a review by Arbuthnott and Lewis, different risk factors for self-harm associated with parents were examined. They identified and classified different risk factors into three domains; 1) parent factors (family structure, socioeconomic status, parental health/ mental health), 2) family factors (family environment, adverse childhood experience, family mental health history), and 3) Parent-child relationship factors (relationship quality, parental support, discipline and control, adverse childhood experience) [38]. From these categories perceived invalidation/validation mainly corresponded to relationship quality and parental support. In a qualitative study intrapersonal/ psychosocial issues contributing to self-harm were

examined among young women in UK [39]. A recurrent theme was parents' initial reaction upon learning that the adolescent self-harmed. The adolescents found it helpful if met with acceptance and validation, and not with overreaction or dismissal of emotional pain. Importantly, young women were more willing to seek help from parents if parents were perceived to genuinely care and were able to discuss self-harm with them. The aforementioned study also suggested that peers can be vital source of support for adolescents disclosing about self-harm [39].

In line with our results several studies also suggest a link between an invalidating home environment and the ability to regulate emotions [11, 22]. Parental invalidation is assumed to impede the development of crucial emotion regulation skills. Growing up in an invalidating environment may prevent the child from learning how to recognize, label, trust and express feelings [11, 35, 40].

Albeit a small study sample, Shenk and Fruzzetti [41] have made an important contribution to the research by demonstrating a large and statistically significant difference between a clinical and a non-clinical sample concerning ratings of validation. They also found validating parental behaviors to be correlated with a higher degree of satisfaction in parent-child relationships, characterized by more effective emotion regulation. On the other hand, invalidating behaviors were associated with lower relationship satisfaction and externalizing behavior. This study utilized the observational rating scale *Validating and invalidating behavior coding scale* (VIBCS) [41].

Some studies have also investigated the more immediate effect of validation and invalidation, on emotion regulation. One study found that when a sample of non-clinical individuals were presented a stressful task, those who were met with an invalidating response over time reported significantly higher levels of negative affect and showed increased heart rate and skin conductance, when compared to persons who were validated [42]. In another experimental study participants were instructed to solve a math task. The participants who were invalidated during the problem solving showed increased physiological arousal and decreased willingness to take part in the experiment as opposed to those who were validated [43]. These results clearly indicate that validation/invalidation are potent both proximal and distal factors when it comes to emotion regulation, which in turn impacts subsequent behaviors.

A clinical as well as theoretically relevant question is whether the absence of validation or the presence of invalidation is the most salient contributor to emotion dysregulation and self-harm. As visible in table 3, invalidation consistently shows stronger associations with both emotion dysregulation and self-harm. This is consistent with Linehans description that an invalidating environment is not merely the absence of a validating environment [35]. Interestingly, Adrian and colleagues found that high levels of validation did not compensate for high levels of invalidation as the persons who reported high level of both also had the highest number of self-harm incidences [19].

In light of the results from previous studies [13, 17] it is reasonable that peer relations and more specifically peer validation/ invalidation has an influence on both adolescents emotion regulation and self-harm. However, the correlations are not as strong for friend and partner relations as for family

relations in our study, which can be explained by the fact that the study sample has a quite low average age (17.2 y) and that the majority (80.7%) still lives together with their parents.

The correlations in the present study suggests that emotion regulation is more strongly associated with perceived validation/ invalidation than self-harm. This finding makes sense given that emotion regulation/dysregulation in response to validation/invalidation temporally precedes self-harm as a behavioral consequence. Also, young people have repertoires of other behaviors than self-harm with which to respond to environmental dysregulation when it occurs.

The relationship between perceived validation/invalidation and self-harm and the mediational role of emotion dysregulation is presented in Figs. 2 and 3. Similar pathways have been demonstrated in other studies [14, 16, 29]. Tatnell and Colloques examined the associations between different interpersonal and intrapersonal factors and NSSI. Attachment and social support from parents were related to onset, maintenance and cessation of NSSI and the relationship was mediated by emotion regulation in terms of cognitive reappraisal [44].

The correlation between the different levels of validation are all in the expected direction. The clearest result from the correlations is that the DERS shows stronger relations to all the validation levels than DSHI-9r. Looking at the invalidation levels (all in a positive direction) there seems to be a dividing-line, where invalidation at level 1–3 shows weaker associations with both self-harm and emotion dysregulation than level 4–6. An interpretation of this could be that as individuals experience higher levels of invalidation i.e. having their emotion, thoughts, and action dismissed or declared pathological or irrational, their emotion dysregulation increases and so does frequency of self-harm.

Theoretical and Practical Implications

To identify potential transactions between validation/invalidation and self-harm as well as the role of emotion dysregulation is highly important. REMTA is a self-assessment that could be used in both clinical and non-clinical settings. The sample in the present study perhaps best represents a sub-clinical sample. Biosocial Theory in DBT explains the onset and maintenance of BPD symptoms including self-harm and suicidality. The Biosocial model is transactional in nature as it proposes that invalidation in the environment maintains and exacerbate the biological sensitivity of the individual. When a person with an inborn emotional sensitivity is in an environment which is characterized by an intolerance for emotional experiences/ expressions there is a transaction over time leading to emotion dysregulation such as self-harm. The reverse is also plausible, that a validating environment facilitates the ability to regulate emotions and more functional strategies. Our results are in line with the Biosocial Theory as emotion dysregulation explains a large and significant part of the association between validation/invalidation and self-harm. The interactions between parents and their children are intricate and complex. The results from this study further support the importance of studying in more detail the nearest network's response to young people's expressions of emotions.

Parents of self-harming adolescents often express uncertainty as how to interact with their children. As REMTA closely follows the validation/invalidation levels as described in the literature [20, 24] it represents a meaningful possibility to investigate how the different levels of validation and invalidation impact emotion regulation and subsequent self-harm. The structure of the assessment also allows for a more in depth investigation of both validation and invalidation and the direction as well as the associations between them. We found REMTA easy to administer. It provides the opportunity to evaluate validation and invalidation across multiple contexts. Finally, in clinical settings where the individual does not respond to primary individual treatment, REMTA can offer a direction of a more relational focus which may be particularly important for young people who may benefit from family therapy.

Strengths Limitations, and Future Directions

Although the results of the present study indicate an association between perceived validation/invalidation and self-harm, partially mediated by emotion regulation, it should be noted that there are several limitations that might restrict the interpretations of the results. First the study has a cross-sectional design and as such does not allow for causal conclusions. A longitudinal study would have been necessary to demonstrate specific temporal connections of the hypothesized relationships. Furthermore, the sample was mainly composed of Caucasian females and they might differ significantly in their reporting of emotions and perceived validation from other cultural or gender groups. It would be valuable in the future to examine the generalizability of the results by explicitly targeting individuals with other demographic characteristics. In this study we rely solely on self-report measures, which may mean that the result partly reflects response-biases. On the other hand, as the constructs of interest were the participants subjective experiences of emotion regulation and their perceptions of validation/invalidation, self-reports should be regarded as the most intuitive and valid method. Future work could however preferably include other reporting sources to ensure reliability. REMTA is a novel instrument which means that there are no known psychometrics pertaining to reliability and validity. That said, the instrument was developed in consultation with the founder of DBT. The REMTA's feasibility has been pilot-tested, and our results demonstrate that it follows closely the measureably different levels of validation and invalidation [20]. Self-reporting as opposed to clinician ratings of validation may also have some benefits, for example it can be easily administered to a larger number of participants in a relatively short time. Further, it does not involve the costs associated with training people to follow observation protocols. It should also be mentioned that DERS as measure of a construct relevant to the population as a whole might be more accurately represented in the present sample than DSHI-9r. It would be interesting to examine if the correlations would look different in a clinical population. Due to the skewed distribution in terms of sex, gender, and sexual identities, we did not do any statistical comparisons. It would be highly

Lastly the design of the present study naturally precludes that some in-depth questions can be asked. It would be informative to differentiate between initiation and maintenance of self-harm applying similar mediational analysis as in the present study, as previous studies have suggested different developmental pathways may be involved in the onset versus the regular use of self-harm [37].

Conclusions

In sum, the present study makes a contribution to the existing literature by examining intricate associations in relation to validation, invalidation, emotion dysregulation and self-harm amongst youth in a large community sample. Given that validation is a crucial relational component which largely predicts general wellbeing and functioning, it is remarkable that there is no established assessment for its measurement. Greater scientific rigor pertaining to the construct of invalidation has been requested [35]. The present study provides additional support for the biosocial model [20], in that perceived validation/invalidation effects self-harm through emotion regulation.

Abbreviations

BPD

Borderline Personality Disorder

DBT

Dialectical Behavior Therapy

DBT-VLCS

DBT-Validation Level Coding Scale

DERS

Difficulties in Emotion Regulation Scale

DSHI-9r

Deliberate Self-Harm Inventory, nine items, revised

NICE

National Institute for Health and Care Excellence

REMTA

Responses to My Emotions, Thoughts and Actions

SPSS

Statistical Package for the Social Sciences

Declarations

Ethics approval and consent to participate

The study was approved by the Regional Ethics Board in Stockholm (Dnr. 2015/815-31/5).

Consent for publication

Not applicable.

Availability of data and materials

The datasets used and/or analyzed during the current study are not publicly available due to the sensitive nature and answers from the participants on some open-end questions. Datasets are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

Funding

The first author was financially supported by The Sven Jerring Foundation.

Authors' contributions

AG and MBW designed the study. PE and SL contributed to finalize the design. MBW AG ran the analyses. MBW and SL wrote the first draft of the manuscript and PE and AG contributed significantly. All authors read and approved the final manuscript.

Acknowledgements

The valuable treatment work conducted by the team and the generous trust of the families are gratefully acknowledged.

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Figures

Figure 1

Flow-chart of participants' entrance to the study Note: DSHI-9r = Deliberate Self-Harm Inventory, DERS = Difficulties in Emotion Regulation Scale, REMTA = Responses to my Emotions, Thoughts and Actions

Figure 2

Regression coefficients for the relationship between perceived validation and frequency of self-harm as mediated by emotion dysregulation. The regression coefficient between perceived validation and self-harm controlling for emotion dysregulation, is in parenthesis. * $p < .05$.

Figure 3

Regression coefficients for the relationship between perceived invalidation and frequency of self-harm as mediated by emotion dysregulation. The regression coefficient between perceived invalidation and self-harm controlling for emotion dysregulation, is in parenthesis. * $p < .05$.

Supplementary Files

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