Computerized scoring of interview data: Examining the relationship between emotional awareness and psychopathology for mothers of infants with craniofacial anomalies

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Abstract

Deficits in emotional awareness have been implicated in depression, anxiety, and insecure attachment (Novick-Kline, Turk, Mennin, Hoyt, & Gallagher 2005). According to Lane and Swartz's (1987) cognitive-developmental theory of emotional awareness, psychopathology is linked to an inability to recognize, interpret, and respond to emotional states in oneself and others. However, few studies have examined the importance of emotional awareness for mothers of infants with chronic health problems, in terms of their own psychological health or their interactions with their infants.

In this study we analyzed transcripts of Pianta and Marvin's (1993) Reaction to Diagnosis Interview (RDI), which codes mothers as resolved or unresolved with respect to having a child with a chronic medical condition. Emotional awareness was coded from the RDI transcripts using the Program for Open-Ended Scoring (POES; Leaf & Barchard, 2006) and a Wordlist (Barchard, 2006) adapted from the Levels of Emotional Awareness Scale (Lane, 1991). Emotion words were scored from 0 to 3 based upon their cognitive complexity and specificity. We examined emotional awareness in relation to maternal sensitivity (Maternal Sensitivity Scale; Ainsworth, Bell, & Stayton, 1974), depression (Center for Epidemiologic Studies Depression Scale; CES-D; Radloff, 1977), anxiety (State-Trait Anxiety Inventory; STAI; Spielberger, 1983), and resolution on the RDI.

As expected, emotional awareness was related to levels of distress. In particular, using words at the lowest level of emotional awareness was positively related to depression and anxiety, while using words at an intermediate level (level 2) was associated with lower depression and anxiety and more maternal sensitivity.

These findings are consistent with previous research showing links between psychological distress and deficits in emotional awareness, and suggest the importance of identifying and improving emotional awareness as part of adaptive coping. These findings also demonstrate the fruitfulness of using computers to score semi-structured interview data. The potential of POES for objective scoring of other open-ended interviews and questionnaires should be explored further.

Introduction

Deficits in emotional awareness have been implicated in depression, anxiety, and insecure attachment (Novick-Kline, Turk, Mennin, Hoyt, & Gallagher 2005). According to Lane and Swartz's (1987) cognitive-developmental theory of emotional awareness, psychopathology is linked to an inability to recognize, interpret, and respond to emotional states in oneself and others. Emotional awareness has been examined within the context of interpersonal relationships, but few studies have recognized its role in the development of mother-infant attachment. As part of a larger longitudinal study on the effects of infant craniofacial anomalies on mother-infant interaction and maternal and child psychological adjustment (see Oster, 2005), we examined the relations between mothers' emotional awareness and their depression, anxiety, and maternal sensitivity.

Method

Participants

Participants were 27 mothers, 14 of whose infants had cleft lip or cleft lip and palate, and 13 who had infants with other craniofacial anomalies or facial hemangiomas.

Measures

Emotional Awareness. In this study we analyzed transcripts of Pianta and Marvin's (1993) Reaction to Diagnosis Interview (RDI), which codes mothers as resolved or unresolved with respect to having a child with a chronic medical condition. Emotional awareness was coded from the RDI transcripts using the Program for Open-Ended Scoring (POES 1.2.2; Leaf & Barchard, 2006) and a Wordlist (Barchard, 2006) adapted from the Levels of Emotional Awareness Scale (LEAS; Lane, 1991; Lane, Quinlan, Schwartz, Walker, & Zeitlan, 1990). To understand POES scoring, it is first important to understand the LEAS. The LEAS is a 20-item open-ended pen-and-paper test of Emotional Awareness. Scores on the LEAS are determined by comparing the written responses to a Glossary of words and phrases (Lane, 1991). Words are classified into one of four levels, with higher levels indicating higher levels of Emotional Awareness:

Level 0: Non-emotional words, including cognitions, e.g., expect, sure, different, aware

Level 1: Bodily sensations, e.g., tired, pain

Level 2: Undifferentiated emotions, words that also have non-emotional meanings, and actions associated with emotions, e.g., good, upset, abandoned, comfortable, cry

Level 3: Specific emotions, e.g., happy, scared, concerned, want, worry

Method Con't

POES is a computer program designed to score open-ended tests by comparing the responses to a Wordlist. For this study, we used the LEAS Wordlist 2.1 (Barchard, 2006), which was adapted from the LEAS Glossary (Lane, 1991). Thus, the words and phrases in the RDI transcripts were categorized as falling into the four levels described above, and the proportion of words falling into each level was calculated for each participant. Before scoring the RDI transcripts using POES, the second author examined the context of each word; if the mother was not using a word to describe an emotion (e.g., "my baby looks different"), then the word was removed.

Outcome Measures. We examined the relations between emotional awareness and maternal sensitivity (Maternal Sensitivity Scale; Ainsworth, Bell, & Stayton, 1974), depression (Center for Epidemiologic Studies Depression Scale; CES-D; Radloff, 1977), anxiety (State-Trait Anxiety Inventory; STAI; Spielberger, 1983), and resolution on the RDI.

Results

As expected, emotional awareness was related to levels of distress. See Table 1. Depression and anxiety were associated with the use of more Level 0 words and fewer Level 2 words. Maternal sensitivity was related to the use of more Level 2 words and fewer Level 0 words, although this later relationship did not reach statistical significance.

Table 1

Pearson Correlations between LEAS Word Use and Measures of Depression (CES-D) and Anxiety (STAI), and Maternal Sensitivity

LEAS Levels Used	CES-D 3 Months (N = 19)	CES-D 6 Months (N = 26)	STAI (N = 27)	Maternal Sensitivity 3 Months (n=20)	Maternal Sensitivity 6 Months (n=25)
Level 0	.71**	.42*	.54**	-.42	-.28
Level 1	.42	.05	.10	-.20	-.08
Level 2	-.36	-.44*	-0.45*	.53*	.50*
Level 3	-.25	.15	.06	-.19	-.27

* $p < .05$. ** $p < .005$.

Next we compared the mothers who were coded as resolved with the mothers who were coded as unresolved with respect to their child's diagnosis. See Table 2. Mothers who were coded as resolved used fewer Level 0 words and more Level 2 words. The difference was statistically significant for the Level 2 words, but was only a trend for the Level 0 words.

Table 2

Differences between Mothers coded as Resolved or Unresolved

LEAS Levels Used	RDI Coding				t-test (p)
	Resolved		Unresolved		
	M	SD	M	SD	
Level 0	4.93	3.39	10.86	8.99	1.91 (.088)
Level 1	1.39	2.1	2.66	2.19	1.46 (.157)
Level 2	33.98	7.78	24.14	8.73	-2.97 (.006)
Level 3	59.69	10.05	62.37	9.81	.685 (.517)

Examples of Infant Groups (L to R, Top to Bottom) craniofacial anomaly (Goldenhar); cleft lip & palate; facial hemangioma; comparison (From Oster, 2003, p. 200).

Conclusions

Overall, these results are consistent with previous research showing links between psychological distress and deficits in emotional awareness, and they suggest the importance of identifying and improving emotional awareness as part of adaptive coping. In this particular study, using more words that indicate the lowest level of emotional awareness was associated with more anxiety and depression. Using more words from a higher level of emotional awareness (level 2) was associated with less anxiety and depression, and more maternal sensitivity. Furthermore, mothers who were coded as resolved with respect to their child's diagnosis used more level 2 words. Thus, it appears that greater emotional awareness may lead to better psychological health, better adjustment to a diagnosis of an ongoing medical condition in one's child, and a closer emotional bond with one's child. Surprisingly, the use of Level 3 words had no significant relationships with any of the outcome variables in this study. This maybe because the Level 3 words in the LEAS Glossary are predominantly negative.

Future research should consider using additional categories, beyond the levels of emotional awareness originally proposed by Lane (1991). First, future research should distinguish between positive and negative emotion words. This type of analysis can easily be done using POES, by creating separate Wordlists for the level 3 emotion words that are positive and the level 3 emotion words that are negative. In addition, future research should focus on categories that are particularly relevant to mothers with infants with craniofacial anomalies, such as whether their child is normal or not. Before editing the transcripts to remove non-emotional content, we noted that mothers often commented on whether their child would be perceived as normal or different. An emphasis on normality may be particularly relevant to adjustment in this situation. This change of focus demonstrates the flexibility of POES for dealing with a variety of data types, and may also increase the strength of the relationships in this dataset. The potential of POES for objective scoring of other open-ended interviews and questionnaires should be explored further.

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