

Social Information-Processing Factors in Children with Internalizing and Externalizing Problems

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Abstract

Social Information-processing model conceptualized human's social behaviors as a function of sequential steps of processing, including encoding and interpretation of social cues, clarification of goals, response access or construction, response decision, and behavior enactment (Crick & Dodge, 1994; Dodge & Crick, 1990). The present study recruited a community sample of 651 adolescents (aged 13 to 15) in Hong Kong, who were given 25 items from the Chinese version of Achenbach's Youth Self-Report Form (YSR) measuring internalizing tendency (withdrawn, somatic complaints, and anxious / depressed), and 6 self-reported items adapted from the Teachers rating scale developed by Dodge & Coie (1987), measuring reactive and proactive aggression. Social information-processing patterns were assessed by having subjects read 12 hypothetical stories and rated on a likert scale concerning the followings: how much they agreed or disagreed with three attributions of intentions (hostile, benign, and self-blame); and five response evaluation statements (likelihood of tangible reward, likelihood of decreasing future aversive treatment, interpersonal consequence, quality of response, and how likely they would act in such a way or similar ways). Results from multiple regression and structural equation model supported the hypothesis that for internalizing disorder and reactive aggressive tendency, interpretation stage (self-blame and hostile interpretation respectively) was more important than response evaluation factors. While for proactive aggressive tendency, response evaluation factors (e.g. expectation of instrumental and relational reward) was more important than interpretation factors. Results were discussed with reference to the three hypothesis, the possibility of cognitive distortion, differentiation of the three types of disorders: internalizing disorder, reactive aggression, and proactive aggression, by the relative importance of the different social information-processing stages, and lastly the implication of present findings to intervention.

摘要

社交資料處理理論(Social Information-Processing Model)把人類的社交行為理解為一連串的資料處理過程的後果。當中的資料處理過程包括：接收和理解資料、定立目標、構想回應行為、選擇回應行為、及實行回應行為。在是次研究中，一共有651名香港的青少年參與，年齡介乎13至15歲。每位受試者須填寫一份問卷，內容包括25條取自 Achenbach's Youth Self-report Form (YSR)用以量度青少年內化問題的傾向的題目，以及6條改自 Dodge & Coie (1987)的老師評估問卷(Teachers' rating scale)用以量度青少年的反應性和主動性的暴力傾向的題目。問卷亦包括了12個假設性的處境情況，受試者要就個別情況，表示他們對那個情況的不同理解方法(惡意、中立、和自我指責)的同意情度。此外，他們更要對3種回應方法：暴力、中立、及退縮，作出評價。例如個別方法能否帶來實質的好處、令對方不再對自己不友善、令對方喜歡自己、是否一個好方法、及會否選擇那個或類似的方法。研究結果發現對於解釋及預測青少年的內化問題的傾向或反應性暴力的傾向，如何理解處境情況比起如何評價不同的回應方法更重要。相反，對於解釋及預測青少年的主動性暴力的傾向，如何評價不同的回應方法卻比如何理解處境情況更重要。本文最後會就以上的研究結果如何幫助我們區分和治療內化問題、反應性暴力、及主動性暴力作出討論。

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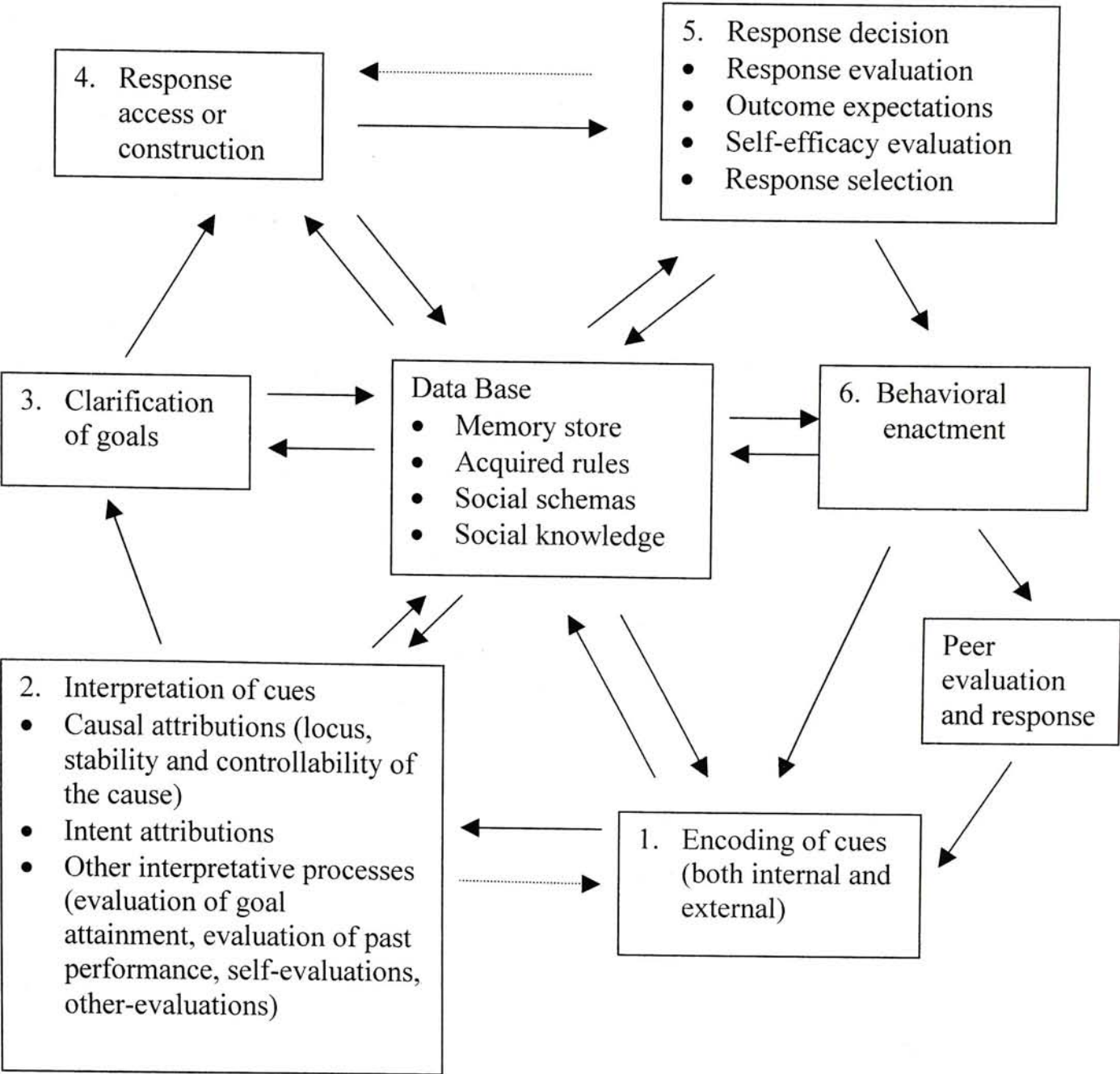
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Social Information-Processing Factors in Children with Internalizing and Externalizing Problems

During the past few decades, there has been an increased interest in the role that cognitions play in childhood psychopathology. One of the cognitive models is social information-processing model. According to social information-processing model, children’s social behavior is a function of sequential steps of processing, including encoding of social cues, interpretation of social cues, clarification of goals, response access or construction, response decision, and behavioral enactment (Crick & Dodge, 1994; Dodge & Crick, 1990).

The model is depicted in the following figure :

Figure 1. Social Information Processing Model



According to this model, it is proposed that children come to a social situation with a set of biologically limited capabilities and a database of memories of past experiences. Input from the environment is received as an array of cues. Children's behavioral response is a function of processing of those cues. Firstly, children will selectively attend to both situational and internal cues. They will encode them and then interpret them. Interpretation include: i) attributing the cause of the event, ii) inferring the intention of others, iii) assessing whether the goal for any previous social exchange had been obtained, iv) evaluating past performance, and finally v) inferring the meaning of the prior and present exchange for the self and the peer. All of these interpretational processes may be guided by data-base information stored in memory. After the interpretation stage, children will select a goal or desired outcome for the situation or continue with a preexisting goal. Then children access from memory possible responses to the situation or construct new responses. After that they will evaluate those responses and select the most positively evaluated response for enactment. Evaluation of responses include: i) the outcomes they expect to occur as a result of their response (outcome expectation), ii) the degree of confidence they have in their ability to enact the response (self-efficacy), and iii) the evaluation of the appropriateness of the response (response evaluation). In the final stage, children will engage in behavioral enactment. Consequences of the enactment, peer evaluation and response will then serve as input for information processing of next social exchange (Crick & Dodge, 1994).

The childhood psychopathology that received the most attention from the above model is depression (internalizing problems) and aggression (externalizing problems). With respect to aggression, a distinction between reactive aggression and proactive aggression was proposed (Dodge & Coie, 1987; Price & Dodge, 1989; Crick & Dodge, 1996; Dodge, Harnish, Lochman, Bates & Pettit, 1997). Reactive aggression is an angry, defensive response to frustration or provocation. Proactive aggression is a deliberate behavior that is

controlled by external reinforcement (Crick & Dodge, 1996). A lot of research findings demonstrate that depressive, reactively aggressive, and proactively aggressive children have different characteristics in the different stages of the social information-processing model.

I) Encoding of cues

A) Reactive and Proactive Aggression

Regarding cue encoding, aggressive children have been found to search for fewer social cues before making attributions about others' intent than do non-aggressive children. For instance, aggressive children chose to listen to fewer testimonials before making judgment about the provocateur's intention in a hypothetical situation (Dodge & Newman, 1981; Finch & Montgomery, 1973; Milich & Dodge, 1984). This makes the interpretation of the social cues of aggressive children less accurate. Gouze (1987) found that aggressive children were more likely to focus on aggressive cues in the environment. He had children watched aggressive and nonaggressive videotaped puppet show while keeping an eye on a red light next to the television. Children had to shut it off whenever it was on. It was found that aggressive children had more difficulty shifting their attention away from the aggressive puppet skits as compared to the non-aggressive skits. In another task, children were given a water-toss toy to play with while distracting social stimuli (either an aggressive cartoon or non-aggressive cartoon) was presented. It was found that aggressive children looked up from the water-toss toy to watch television more often while the aggressive cartoon was playing than when the non-aggressive cartoon was playing. On the other hand, Dodge et al. (1997) found that pervasively aggressive children (i.e. being reactively aggressive and proactively aggressive at the same time) displayed more encoding errors than did proactively aggressive only children and non-aggressive children. They found that children who were both reactively and proactively aggressive made more errors in their recall of the details of the story they watched in a video in terms of the number of relevant and irrelevant details of the

story. As a result, it enhances the likelihood that aggressive children will interpret the environment in a hostile manner and respond aggressively in retaliation. Dodge & Frame (1982) asked their subjects to watch a videotaped interview depicting the boy in the interview either as benevolent, hostile or benign through the statements that the boy gave. Subjects were asked to recall as many of the things that the boy had said as they could. Subjects also had to estimate how likely the boy would probably display a benevolent, hostile or neutral act in the future. A correlation between attention to hostile cues (in terms of the number of hostile statements recalled by subjects) and hostile attributions about the intent of the stimulus person, as well as subsequent aggressive behavioral response was found.

B) Depression

Similar to aggressive children, depressed children also demonstrate biased encoding but the bias is towards negative self-reference, failure and loss instead of hostile cues. Hammen & Zupan (1984) and Zupan, Hammen & Jacnicke (1987) gave subjects a depth-of-processing incidental recall task. Negative and positive adjectives were presented either in structural context (e.g. Is this a long word?) and self-referent context (e.g. Is this word like you?). They found that depressed children processed and recalled more negative self-referent words, fewer positive self-referent and non-self-referent words than non-depressed children.

II) Interpretation of cues

A) Reactive and Proactive Aggression

Research findings indicate that hostile attributional biases were present in the social information processing of aggressive boys; they attributed more frequently hostile intent to ambiguous situation whereas non-aggressive boys attributed benign intent (Dodge, 1980; Dodge & Frame, 1982; Quiggle, Garber, Panak, & Dodge, 1992). For example, in Quiggle et. al.'s study, children read six stories – two Entry stories (they tried to join a group but were rejected), two Provocation stories (a peer ridiculed or bumped them), and two Failure stories

(they found out that they had failed at an academic task). An example of an Entry story is :
 “Let’s imagine that several kids are sitting at a lunch table eating lunch. You can see that they are laughing and having a good time and you’d like to join them. You walk up to the table and ask them if they’d make some room for you too. One of them tells you ‘No’.”
 Then subjects were asked how much they thought what happened in the story was due to the deliberate malevolent intent of another (e.g. “How much do you think the kid who said ‘No’ was trying to be mean?” They responded on a 4-point rating scale ranging from 1 “not at all” to 4 “very much”. It was found that aggressive children were significantly more likely than non-aggressive children to attribute hostile intent to another. However more recent studies distinguished between reactive and proactive aggression and found that only reactively aggressive children demonstrated such hostile attributional bias. Reactively aggressive children were more likely than proactively aggressive and non-aggressive children to make a hostile attribution after watching hypothetical vignettes depicting a provocation situation in which the intent of the provocateur was ambiguous (Dodge & Coie, 1987; Crick & Dodge, 1996).

With regard to causal attribution, aggressive children did not differ from non-aggressive children in terms of explanatory style (i.e. locus of control, stability and specificity of causes). Quiggle, Garber, Panak, & Dodge (1992) read to their subjects a series of 12 paired attributions and asked them to decide which of the two choices was the more likely reason for what had happened in the story subjects heard previously. The 12 paired attributions were made up of the two dimension factors along the Internal-External, Global-Specific, and Stable-Unstable dimensions. For the first dimension, the factor “Internal” means the cause lies within the individual (e.g. I’m bad), and the factor “External” means the cause lies outside the individual (e.g. the provoking person is bad). For the second dimension, the factor “Global” means the cause affects all aspects of life (e.g. I’m stupid in

everything), while the factor “Specific” means the cause only affect specific area(s) (e.g. I’m only poor at sports). The factor “Stable” of the third dimension means the cause is not going to change (e.g. I’m ugly), and the factor “Unstable” the cause is changeable (e.g. I dress in an ugly way). Subjects in Quiggle et al. (1992)’s study were read, “Internal – External” and had to decide the reason for what had happened in the story was internal or external. It was found that aggressive children did not differ from non-aggressive children in their choices of attributional style.

B) Depression

Interesting enough, depressed children also made more hostile attributions than did non-depressed children. However depressed children were more likely than non-depressed children to attribute negative events to the combination of internal, global, and stable causes as indicated by their decisions to the 12 paired attributions (Quiggle et al., 1992; Garber, Quiggle, Panak & Dodge, 1991). That is, they interpreted the negative events as: i) caused by them, ii) affected all aspects of their life, and iii) were not going to change. Thus while both groups of aggressive and depressive children seemed to display a bias toward attending to negative cues in the environment, aggressive children identify others as the source of negative events (i.e. identify hostile intents in others) but depressed children are more likely to identify themselves as the source of negative events.

III) Clarification of goals

A) Reactive and Proactive Aggression

Positive social adjustment (e.g. pro-social behavior) is found to be significantly related to the formulation of goals that are likely to be relationship enhancing (e.g. being helpful to peers), whereas social maladjustment (i.e. aggressive behavior) is related to construction of goals that are likely to be relationship damaging (e.g. winning over others or getting even with a peer), (Renshaw & Asher, 1983). Crick & Dodge (1996) found that

proactive-aggressive children selected instrumental goals (i.e. they could gain something, e.g. “The kids let you have the ball”) rather than relational goals (e.g. “The kids like you”) significantly more than did their nonproactive-aggressive peers.

B) Depression

Limited research has been done in this area, thus there is no clear indicator or suggestion of how depressed children formulate their goals.

IV) Response access or construction

A) Reactive and Proactive Aggression

Early studies found that aggressive children tend to generate a higher proportion of aggressive responses and fewer assertive responses than do non-aggressive children (Asarnow & Callan, 1985; Richard & Dodge, 1982). In response to peer group entry initiation dilemmas, aggressive children were more likely to generate verbally coercive, physically aggressive or bizarrely irrelevant responses (Dodge, Pettit, McClaskey, & Brown, 1986). In response to peer provocation, they were more likely to access direct physical aggressive response (Slaby & Guerra, 1988; Waas, 1988). More recent studies demonstrated a difference between reactively and proactively aggressive children. Reactively aggressive children were found to generate more aggressive responses to the ambiguous stimulus than did the proactive-aggressive and non-aggressive groups. Children after watching the 12 vignettes of a provocation situation were asked how they would behave if they had been provoked. Four response options : (a) do nothing; (b) ask peer why he caused the bad outcome; (c) tell the teacher to discipline the peer; and (d) get angry at the peer. The last two options were considered as aggressive responses. It was found that the reactive-aggressive group tended to choose more aggressive responses to the ambiguous stimulus than did the average group (Dodge & Coie, 1987). Dodge et al. (1997) had children watched cartoons about hypothetical social dilemmas (e.g. the peer is riding the child's bicycle and the child

wants it back, or peers are playing a game that the child wants to join). Children were then asked to state all the possible behavioral solutions to the story that they could generate. Responses were later coded into 3 categories: aggressive, passive/inept, and assertively competent. It was found that reactive-aggressive group demonstrated more aggressive problem-solving responses than did the proactive-aggressive group and non-aggressive group.

B) Depression

Depressed children are found to generate fewer assertive responses (Quiggle et al., 1992; Garber et al., 1991) and offered more irrelevant means (Mullins, Siegel, & Hodges, 1985). For instance, in Quiggle et. al.'s study, children were asked to report what they thought they would do if the Entry, Provocation, and Failure stories happened to them. They were probed for multiple responses and each response was later coded into one of the five mutually exclusive categories: (a) aggressive, (b) assertive, (c) withdrawn, (d) pure affect, and (e) other. It was found that depressed children showed a trend toward generating fewer assertive responses. In Mullins, Siegel, & Hodges (1985)'s study, subjects had to fill in the Social Means-Ends Problem-Solving Questionnaire (six short story situations that require the child to generate means to a given end) as well as the Children's Depression Inventory. They found a small yet significant correlation between depression and the total number of irrelevant means on the Social Means-Ends Problem-Solving Questionnaire.

V) Response Decision

A) Reactive and Proactive Aggression

Response evaluation. Earlier studies showed that aggressive children evaluated aggression more positively than other children did. They judged aggression as being less morally "bad" (Deluty, 1983) and more "friendly" (Crick & Ladd, 1991). Deluty (1983) presented 4th through 6th graders with a series of assertive, submissive, and physically

aggressive strategies and asked them to select those strategies that would most likely make themselves or the peer feel the best. Compared with peers, aggressive children were more likely to say that physically aggressive strategies make themselves feel the best. Crick and Ladd (1991) presented subjects with six strategies in response to two hypothetical situations – physical aggression, verbal aggression (threats), commands, compromise, appeal to social norm, and polite request strategies. For each of the strategies, children had to rate each of the strategies according to whether it was a mean (1), kind of mean (2), kind of nice (3), or nice (4) thing to do in the given situation. It was found that aggressive children evaluated the physically aggressive and threat strategies as significantly more friendly (either “kind of nice” or “nice”) than did other children. Quiggle et. al. (1992) also found that aggressive children rated aggression more positively and more favorably in general. Children read three types of responses supposedly given by other children: aggressive, withdrawal, and assertive. They were then asked to rate the quality of the response from 1 “very bad” to 4 “very good”. It was found that aggressive children showed a tendency toward evaluating aggressive behavior more favorably than did their non-aggressive peers.

Outcome expectation. Aggressive children were found to expect more positive instrumental outcomes (Perry, Perry, Rasmussen, 1986; Hart, Ladd, & Burleson, 1990) and fewer negative interpersonal outcomes (Quiggle et al., 1992) when they were asked what they thought would happen if they engaged in the aggressive behavior in response to the situation in the story they read. They expected aggression to be more effective in obtaining rewards, in decreasing aversive treatment from others, and in bringing about more positive self-evaluations (Perry, Perry & Rasmussen, 1986). However when reactive aggression is distinguished from proactive, it is found that positive outcome expectation of aggressive responses is only present with proactively aggressive children. In Crick & Dodge (1996)’s study, children evaluated two types of outcomes (instrumental and relational) for verbal

aggression and physical aggression in response to peer group entry and peer conflict situations. Children had to decide whether the positive or negative instrumental and relational outcomes would occur and how much of the time that they would occur. It was found that proactive-aggressive children reported significantly more positive outcome expectations. They are likely to view aggression as an effective and viable means in bringing instrumental and/or relational outcome.

Self-efficacy evaluation. Aggressive children are found to be more confident than non-aggressive children in performing physically and verbally aggressive behaviors when they were asked to rate how easy or hard it would be for them to react aggressively as described (Perry et al., 1986; Quiggle et al., 1992). When reactive aggression is distinguished from proactive aggression, findings about the degree of self-efficacy of children for aggression are mixed. Dodge, Harnish, Lochman, Bates & Pettit (1997) found greater self-efficacy for aggression to be present in both reactive-aggressive and proactive-aggressive children. However Crick & Dodge (1996) found contradictory results. Proactive-aggressive children reported significantly greater efficacy for enacting aggression than did nonproactive-aggressive children.

Response selection. Aggressive children reported that they would be more likely to use aggressive response (Quiggle et al., 1992).

B) Depression

Response evaluation, outcome expectation, self-efficacy and response selection. With regard to outcome expectation, findings were mixed in this area. Quiggle et al. (1992) found that depressed children expected withdrawal would lead to more positive outcomes. However, there were contradictory findings. Garber et al. (1991) found that depressed children were more likely to expect withdrawal to lead to negative instrumental outcomes and less likely to expect it to lead to positive outcomes. Though the findings concerning outcome

expectation were mixed, both Quiggle et al. (1992) and Garber et al. (1991) found that depressed children were more favorable towards rating withdrawal responses and reported a greater likelihood of being passive or detached. On the other hand, Quiggle et al. (1992) found that depressed children were more likely to report that assertion would lead to fewer positive outcomes and they would be less likely to use assertive responses and would find assertion less easy to enact.

The above studies have depicted the different social information-processing patterns of reactive-aggressive, proactive-aggressive and depressed children. It is clear that the three groups of children are operating differently at each of these stages : encoding, interpreting, goal setting, response constructing, response evaluating, outcome expecting, self-efficacy evaluating and finally response selecting. However previous studies only investigate the different processing styles of aggressive and depressive children at various stages. Rarely did these studies look at the relative importance of the predictive value of these differences are to children's internalizing and externalizing tendency. Dodge, Lochman, Harnish, Bates, & Pettit (1997) had done a study related to this issue. They hypothesized that early-stage processing such as failure to attend to relevant social cues, interpretation of peers' intentions as hostile, and the tendency to access aggressive responses to hypothetical provocations, would lead a child to angry retaliatory behavior such as reactive violence but not necessarily to proactive violence. On the other hand, they hypothesized that later-stage processing such as positive evaluations of the likely consequences of aggressive behavior, would be associated with the proactive and instrumental use of aggression. They had children watched vignettes and cartoons and assessed : (a) their accuracy of recall of the details of the vignettes, (b) their attribution of the intent of others, (c) the degree of aggressiveness of their response to the situations, (d) the degree of aggressiveness of their problem-solving, (e) their

evaluation of the quality (good or bad) of the responses, (f) their anticipated intrapersonal consequences (feeling good or bad within themselves) for aggression, and (g) their self-efficacy for aggression. A discriminant function analysis with the above seven processing variables as predictors was carried out and a significant discriminant function was found. Six of the seven variables were correlated with the function, with particular contributions from anticipated intrapersonal consequences for aggression, self-efficacy for aggression, aggressive problem solving, and encoding errors. Univariate analyses indicated significant effects in predicting group membership from five of the seven variables, with a sixth being marginally significant. As hypothesized, they found the reactive aggressive group demonstrated more aggressive problem-solving responses, generated more aggressive responses, displayed more aggressive problem solving, gave a more positive moral endorsement for aggression, and greater self-efficacy for aggression. Whereas the proactive aggressive group responded with more positive anticipated intrapersonal consequences for aggressing and displayed greater self-efficacy for aggression. However for more later stage processing Dodge et. al. (1997) only included moral endorsement of aggression (good or bad) and the intrapersonal outcome expectation but did not include instrumental and relational outcome expectation. Instrumental outcome expectation was found to be able to distinguish proactive from reactive aggressive children (Crick & Dodge, 1996). Also they only study how the different stages were predictive of children's reactive and proactive aggression without looking at depression.

Therefore the major goal of the present study is to discover the differential predictive power of interpretation, response evaluation and outcome expectation were to children's internalizing / externalizing (reactive and proactive aggression) tendency. Previous studies had shown that only reactively aggressive children demonstrated hostile attributional bias (Dodge & Coie, 1987; Crick & Dodge, 1996). Therefore it is hypothesized that reactive

aggressive tendency will be more affected by early stage processing such as interpretation of the situation. On the other hand, Crick & Dodge (1996) found that positive outcome expectation of aggressive responses is only present with proactively aggressive children. Thus it is hypothesized that proactive aggressive tendency will be more affected by later stage processing such as outcome expectation. Regarding children with depressive tendency, there is a lack of research findings suggesting which stage of processing was more important. Though depression is not distinguished into reactive and proactive type as for aggression, it is likely that quite a significant portion of depression is reactive to certain negative life events. Therefore it is tentatively hypothesized that depressive tendency will also be more affected by interpretation of the situation, as do those children with reactive aggressive tendency.

Method

Subjects

Convenient sampling method was used. 651 F. 2 and F. 3 students from 3 different secondary schools were recruited as subjects. Of these 651 subjects, 82 of them were discarded as they either did not finish the whole questionnaire or response set was found in their questionnaires. Among the remaining 569 subjects, 281 of them were male and 281 were female, with 7 subjects did not report their sex. There were 305 F.2 students and 264 F.3 students in the subject pool. Mean age of the subjects was 13.80, with a S.D. of 1.01.

Assessment of aggression and depression

The Chinese version of Achenbach's Youth Self-Report Form is used to measure children's internalizing tendency (withdrawn, somatic complaints and anxious/depressed). There were 25 items altogether.

A youth self-report inventory adapted from the Teachers rating scale developed by Dodge and Coie (1987) will be used to measure reactive- and proactive-aggressive tendency

of children. There are 6 items in the inventory with 3 measuring reactive-aggression and 3 measuring proactive-aggression. Both the reactive and proactive scales have high internal consistency (coefficient alpha was .90 and .91 respectively). Validity of the two aggression scales was supported by the correlation with assessments by peers. Both types of aggression were found to correlate with social rejection. Self-report inventory instead of teachers rating is used in the present study since it is believed that students would be more controlled in front of teachers and may not dare to act out aggressively. Moreover there was practical problem in having the teachers fill in the teachers-rating scale in Hong Kong. This was because in Hong Kong the teacher-students ratio was usually one to forty. The teachers may not know each student well. Therefore self-report inventory is used.

In this youth self-report inventory, children will rate themselves with respect to the 6 items on a 5-point rating scale, ranging from 1 (never true of themselves) to 5 (always true of themselves). The first three items are used to identify reactive aggressive tendency and include descriptive items : *strikes back when teased*, *blames others in fights*, and *overreacts to accidents*. The next three items are used to identify proactive aggressive tendency and include the following items: *gets kids to gang up on enemies*, *uses force to dominate peers*, and *threatens and bullies to get own way*. Another 6 filler items will be added to the inventory. The order of the 12 items is randomized. Items 3, 4, and 6 are items measuring reactive aggression, items 7, 9, and 11 are items measuring proactive aggression, while the rest are filler items.

Measures of Social Information-Processing Patterns

Subjects will read 12 stories depicting children in ambiguous situations in which (a) they are rejected, (b) they failed, (c) they are provoked and (d) they suffered a loss. There are three stories describing each condition. After each story, subjects have to answer a series of questions designed to assess various aspects of social information processing.

Attribution of intent. Subjects are asked how much they agree with different intentions of the other character in the story and rate on a 4-point scale. Three intentions will be given, with one hostile, one benign and one self-blame.

Response evaluation and outcome expectation. Subjects read three different responses : hostile, assertive/positive and withdrawn. Then they have to rate on the followings: i) how much they agree that the responses will lead to positive instrumental outcome, ii) the degree they expect the responses lead to the decrease of aversive treatment from others, iii) whether they expect the responses will lead to positive or negative interpersonal outcome, and iv) the quality of the responses from 1 "very bad" to 4 "very good". For the first four statements, subjects have to give their answers on a 5-point rating scale, with 1 (Totally agree), 4 (Totally disagree) and 5 (Not suitable).

Response selection. In the end subjects have to rate how likely they will choose to perform each of the given responses (hostile, assertive/positive, and withdrawn) on a 4-point rating scale with 1 (Very unlikely) and 4 (Very likely).

A sample of the questionnaire is in Appendix I.

Procedure

Questionnaires were delivered to subjects during one of the school period (about 40 minutes duration). Subjects were given more time if they could not finish the questionnaires. Nearly all of the subjects were able to finish the questionnaire in 40 minutes time.

Analysis

Computation of variables. First of all the three interpretation variables: hostile interpretation, benign interpretation, and self-blame interpretation of the four types of situations (rejection, failure, provocation, and loss) were computed by calculating the mean rating scores to the statements of hostile interpretation, benign interpretation, and self-blame interpretation of the three stories of the four types of situation respectively. This resulted in

12 variables of: i) hostile interpretation to rejection situation, ii) hostile interpretation to failure situation, iii) hostile interpretation to provocation situation, iv) hostile interpretation to loss situation, v) benign interpretation to rejection situation, vi) benign interpretation to failure situation, vii) benign interpretation to provocation situation, viii) benign interpretation to loss situation, ix) self-blame interpretation to rejection situation, x) self-blame interpretation to failure situation, xi) self-blame interpretation to provocation situation, and xii) self-blame interpretation to loss situation. Then the mean scores of hostile interpretation, benign interpretation, and self-blame interpretation of the four types of situations were computed, resulting in the three interpretation variables.

The 15 response evaluation variables: tangible reward, decrease of aversive treatment, inter-personal outcome, quality, and choice of hostile response; tangible reward, decrease of aversive treatment, inter-personal outcome, quality, and choice of assertive/positive response; as well as tangible reward, decrease of aversive treatment, inter-personal outcome, quality, and choice of withdrawal response were calculated in similar manner. First the mean rating score to the 15 response evaluation statements of the three stories belonging to the four types of situations respectively were calculated. Then the scores of the 15 response evaluation variables of the four types of situations were summed together and the means were calculated.

Results

Internal Consistency

Internal consistency of the 3 interpretation variables (hostile, benign, and self-blame interpretation) and the 15 response evaluation variables (tangible reward, decrease of aversive treatment, inter-personal outcome, quality, and choice of response to the three different

responses – hostile, assertive/positive, and withdrawal) of the four types of situations were computed.

The internal consistency of the 18 variables was found to be moderate to moderately high (ranged from .5010 to .7532). Most of them were around .7, with one exception that the alpha of interpersonal outcome of assertive/positive response was .06. However with the item from loss situation deleted, the alpha raised to .4702. The internal consistency of the 18 variables was considered within acceptable range.

Table 1 Internal consistency of variables across four different types of ambiguous situations

Variables	Overall Standardized item Alpha
Hostile interpretation	.6822
Benign interpretation	.7425
Self-blame interpretation	.5724
Tangible reward (hostile response)	.7190
Decrease of aversive treatment (hostile response)	.7284
Inter-personal outcome (hostile response)	.7487
Quality of hostile response	.7523
Choosing hostile response	.7402
Tangible reward (assertive/positive response)	.6818
Decrease of aversive treatment (assertive/positive resp.)	.7393
Inter-personal outcome (assertive/positive response)	.4702*
Quality of assertive/positive response	.7313
Choosing assertive/positive response	.7243
Tangible reward (withdrawal response)	.5010
Decrease of aversive treatment (withdrawal response)	.7466
Inter-personal outcome (withdrawal response)	.6196
Quality of withdrawal response	.6620
Choosing withdrawal response	.6845

*standardized item alpha when item of loss situation was deleted

Correlation

Pearson correlation between the 3 interpretation variables, 15 response evaluation variables, sex, and the three dependent variables (internalizing disorder, reactive aggression, and proactive aggression) was computed. For the particular variable of sex, Point Biserial correlation was used instead of Pearson correlation since the variable of sex was dichotomous in nature. Correlation coefficients of the 3 dependent variables with the 18 independent variables were shown in Table 2. On the other hand, correlation coefficients among the variables of the same classification (i.e. evaluation of hostile response, evaluation of assertive/positive response, and evaluation of withdrawal response) were shown in Appendix II. Lastly, correlation coefficients among all the independent variables were shown in Appendix III.

The correlation among the independent variables and dependents was not high, ranging from insignificant correlation to around .2 and .3. One possible reason for such results was that non-clinical sample was used in this research. As a result, the range of variation of behavior might have been more restricted. Nonetheless, a number of independent variables were found to have significant correlation with the dependent variables and the correlation coefficients were around .2 to .3.

Internalizing disorder was found to be correlated positively with self-blame interpretation ($r = .275$), hostile interpretation ($r = .193$), tangible reward of hostile response ($r = .148$), quality of hostile response ($r = .140$), choosing hostile response ($r = .114$), tangible reward of withdrawal response ($r = .116$), interpersonal outcome of withdrawal response ($r = .116$), quality of withdrawal response ($r = .137$), and choosing withdrawal response ($r = .193$) at .01 significance level, as well as correlated positively with interpersonal outcome of hostile response ($r = .107$) at .05 significance level. In addition, internalizing disorder was found to be correlated inversely with benign interpretation ($r =$

-.207), tangible reward of assertive/positive response ($r = -.169$), quality of assertive/positive response ($r = -.178$), and choosing assertive/positive response ($r = -.164$) at .01 significance level. In short, internalizing disorder tendency was found to associate with endorsement of self-blame and hostile interpretation, positive evaluation of hostile response as well as withdrawal response, rejection of benign interpretation, and negative evaluation of assertive/positive response. Among these variables, self-blame interpretation had the greatest correlation with internalizing tendency.

Reactive aggression was found to be correlated positively with hostile interpretation ($r = .346$), tangible reward of hostile response ($r = .239$), interpersonal outcome of hostile response ($r = .164$), quality of hostile response ($r = .237$), and choosing hostile response ($r = .276$) at .01 significance level. In addition, inverse correlation with benign interpretation ($r = -.273$), tangible reward of assertive/positive response ($r = -.167$), interpersonal outcome of assertive/positive response ($r = -.111$), quality of assertive/positive response ($r = -.190$), choosing assertive/positive response ($r = -.200$), and sex ($r = -.191$) at .01 significance level. To sum up, reactive aggression tendency was associated with endorsement of hostile and self-blame interpretation, positive evaluation of hostile response, being boys, rejection of benign interpretation, and negative evaluation of assertive/positive response. Among all these variables, hostile interpretation had the greatest correlation with reactive aggression tendency.

Lastly, proactive aggression was found to have positive correlation with hostile interpretation ($r = .256$), self-blame interpretation ($r = .109$), tangible reward of hostile response ($r = .308$), interpersonal outcome of hostile response ($r = .292$), quality of hostile response ($r = .317$), choosing hostile response ($r = .321$), and choosing withdrawal response ($r = .135$) at .01 significance level. Inverse correlation with benign interpretation ($r = -.322$), tangible reward of assertive/positive response ($r = -.251$), decrease aversive treatment of assertive/positive response ($r = -.150$), interpersonal outcome of assertive/positive response (r

= -.122), quality of assertive/positive response ($r = -.261$), choosing assertive/positive response ($r = -.275$), and sex ($r = -.215$) at .01 significance level. To sum up, proactive aggression was associated with positive evaluation of hostile response, endorsement of hostile and self-blame interpretation, positive evaluation of withdrawal response, being boys, rejection of benign interpretation, and negative evaluation of assertive/positive response. Among these variables, correlation with rejection of benign interpretation and positive evaluation of hostile response was greatest.

Table 2

Correlation coefficients between the independent variables and the three dependent variables

	Internalizing	Reactive aggression	Proactive aggression
Hostile interpretation	.193**	.346**	.256**
Benign interpretation	-.207**	-.273**	-.322**
Self-blame interpretation	.275**	.083*	.109**
Tangible reward (hostile response)	.148**	.239**	.308**
Decrease aversive treatment (hostile res.)	.046	.097*	.091*
Interpersonal outcome (hostile response)	.107*	.164**	.292**
Quality of hostile response	.140**	.237**	.317**
Choosing hostile response	.114**	.276**	.321**
Instrumental and relational reward (hostile response)	.139**	.218**	.326**
Tangible reward (assertive/positive resp.)	-.169**	-.167**	-.251**
Decrease aversive treatment (assertive/positive res.)	-.080	-.086*	-.150**
Interpersonal outcome (assertive/positive response)	-.090*	-.111**	-.122**
Quality of assertive/positive response	-.178**	-.190**	-.261**
Choosing assertive/positive response	-.164**	-.200**	-.275**
Tangible reward (withdrawal response)	.116**	-.004	.099*
Decrease aversive treatment (withdrawal)	.018	-.049	-.053
Interpersonal outcome (withdrawal)	.116**	.033	.042
Quality of withdrawal response	.137**	.016	.100*
Choosing withdrawal response	.193**	.087*	.135**
Sex #	.021	-.191**	-.215**
Internalizing	1.000	.242**	.234**
Reactive agg.	-	1.000	.511**
Proactive agg	-	-	1.000

* $p < .05$ ** $p < .01$

Point Biserial correlation was used instead of Pearson correlation

Multiple regression

As correlation only indicated the relationship between independent variables and dependent variables on a one-to-one basis, a series of multiple regression analyses were conducted to look at the independent variables as a group together to predict the dependent variables. Multiple regression was used to find out the relative predictive value of the different social information processing variables (intent attribution and response evaluation) with internalizing disorder, reactive aggression, and proactive aggression as dependent variables. The predictors included the three interpretation variables (hostile interpretation, benign interpretation, and self-blame interpretation), the four hostile response evaluation variables (instrumental and relational reward¹, decrease aversive treatment, quality of hostile response, and choosing hostile response), the five assertive/positive response evaluation variables (tangible reward, decrease aversive treatment, interpersonal outcome, quality of assertive/positive response, and choosing assertive/positive response), the five withdrawal response evaluation variables (tangible reward, decrease aversive treatment, interpersonal outcome, quality of withdrawal response, and choosing withdrawal response), and sex, making a total of 18 predictors. Stepwise method was used and the significance level set for variable entry into the regression equation was $< .05$ and for variable remove from the regression equation was $> .10$. Criteria to remove outliers from the regression model was set

¹ Tangible reward and positive interpersonal outcome are conceptually related that they could be considered as a single variable of positive outcome expectation, i.e. gaining something, whether it is tangible or intangible. Crick & Dodge (1996) summed children's response to the outcome expectation items across the 2 outcome types: instrumental and relational. An alpha of .65 was reported. Therefore these two variables – tangible reward and interpersonal outcome, are combined together by summing the two scores to form a single variable – instrumental and relational reward. However as the correlation between these two variables for assertive/positive response and withdrawal response was not very high (.431 and .252 respectively), only that of hostile response ($r = .70$) were combined to form into one single variable – instrumental and relational reward.

at 2 S.D. ($p < .05$). Analysis of collinearity and assumptions of random distribution of residuals were done and no violation of the two was found.

Internalizing Disorder. It was found that internalizing disorder was predicted significantly by self-blame interpretation, rejection of benign interpretation, instrumental and relational reward of hostile response, as well as tangible reward of withdrawal response. $R^2 = .247$, $F = 41.423$, $p < .01$ ($df = 4, 504$). Standardized coefficients and significance were as follows:

Table 3

Standardized coefficients and significance level of predictors with internalizing disorder as D.V.

Predictors	Standardized Coefficients	Significance
Self-blame interpretation	.407	.000
Benign interpretation	-.262	.000
Instrumental and relational reward of hostile response	-.175	.000
Tangible reward of withdrawal response	.122	.000

It was found that though hostile interpretation, choosing withdrawal response, and evaluation of assertive/positive response also had relatively higher correlation with internalizing tendency (r around .20), these independent variables were not able to enter the regression formula. The reason may be because hostile interpretation was found to have significant correlation with self-blame interpretation ($r = .276$) and benign interpretation ($r = -.534$), while choosing withdrawal response had the highest correlation with self-blame interpretation ($r = .422$) among different evaluation of withdrawal response, and different evaluation of assertive/positive response was found to have moderately high correlation with benign interpretation (around .5 and .6). Therefore they did not enter the regression formula because their contribution to the explanation of the variance of the dependent variable had already

been explained by the independent variables of self-blame interpretation and benign interpretation. Self-blame interpretation, rejection of benign interpretation, instrumental and relational reward of hostile response, and tangible reward of withdrawal response were found to be the most powerful and had independent contribution to the prediction of internalizing tendency. The four predictors were able to explained 25% of the variance altogether. Among the four predictors, self-blame interpretation was found to be the most powerful in predicting internalizing disorder. In order of importance, internalizing tendency is predicted by : i) an endorsement of self-blame interpretation, ii) rejection of benign interpretation, iii) the tendency to disagree hostile response will bring instrumental and relational reward, and iv) the tendency to agree withdrawal response will bring tangible reward.

Reactive aggression. It was found that reactive aggression was predicted significantly by hostile interpretation, sex, choosing hostile response, and tangible reward of withdrawal response. $R^2 = .264$, $F = 44.924$, $p < .01$ ($df = 4, 501$). Standardized coefficients and significance were as follows:

Table 4
Standardized coefficients and significance level of predictors with reactive aggression as D.V.

Predictors	Standardized Coefficients	Significance
Hostile interpretation	.363	.000
Sex	-.182	.000
Choosing hostile response	.152	.001
Tangible reward of withdrawal response	-.132	.001

It was found that though tangible reward of hostile response, quality of hostile response, benign interpretation, quality and choosing assertive/positive response also had relatively higher correlation with reactive aggression (r around .20), these independent variables were not able to enter the regression formula. The reason may be because tangible reward and

quality of hostile response were found to have high correlation with choosing hostile response ($r = .728$ and $.759$ respectively), while benign interpretation, quality and choosing assertive/positive response had moderate correlation with hostile interpretation ($r = -.534$, $-.420$, and $-.386$ respectively), therefore they did not enter the regression formula because their contribution to the explanation of the variance of the dependent variable had already been explained by the independent variables of hostile interpretation and choosing hostile response. Therefore hostile interpretation, sex, choosing hostile response, and tangible reward of withdrawal response were found to be the most powerful and had independent contribution to the prediction of reactive aggression. The four predictors were able to explained 26% of the variance altogether. Among the four predictors, hostile interpretation was found to be the most powerful in predicting reactive aggression. In order of importance, reactive aggression is predicted by : i) an endorsement of hostile interpretation, ii) being boys, iii) the tendency to choose hostile response, and iv) the tendency to disagree withdrawal response will bring tangible reward.

Proactive aggression. It was found that proactive aggression was predicted significantly by instrumental and relational reward of hostile response, rejection of benign interpretation, and sex. $R^2 = .296$, $F = 71.496$, $p < .01$ ($df = 3, 510$). Standardized coefficients and significance were as follows:

Table 5
Standardized coefficients and significance of predictors with proactive aggression as D.V.

Predictors	Standardized Coefficients	Significance
Instrumental and relational reward of hostile response	.314	.000
Benign interpretation	-.236	.000
Sex	-.179	.000

It was found that though hostile interpretation, tangible reward of hostile response, quality and choosing hostile response, tangible reward of assertive/positive response, quality and choosing assertive/positive response also had relatively high correlation with internalizing tendency (r around .30 and .20), these independent variables were not able to enter the regression formula. The reason may be because hostile interpretation was found to have moderate inverse correlation with benign interpretation ($r = -.534$), while quality and choosing hostile response had high correlation with instrumental and relational reward of hostile response (both $r = .783$), and tangible reward of assertive/positive response, quality and choosing assertive/positive response had moderately high correlation with benign interpretation ($r = .572$, $.647$, and $.607$ respectively), therefore they did not enter the regression formula because their contribution to the explanation of the variance of the dependent variable had already been explained by the independent variables of instrumental and relational reward of hostile response and benign interpretation. Therefore instrumental and relational reward of hostile response, rejection of benign interpretation, and sex were found to be the most powerful and had independent contribution to the prediction of proactive aggression. The three predictors were able to explained 30% of the variance altogether. Among the three predictors, instrumental and relational reward of hostile response was found to be the most powerful in predicting proactive aggression. In order of importance, proactive aggression is predicted by : i) an expectation of hostile response to bring tangible reward and positive interpersonal outcome, ii) rejection of benign interpretation, and iii) being boys.

Structural Equation Model

As multiple regression did not considered the three dependent variables together, a structural equation model was built to look at the relationship between the independent variables and dependent variables as a whole. A proposed structural model was shown in figure 2 and figure 3. The five observed variables of evaluation of hostile response formed

an independent latent variable. The five observed variables of evaluation of assertive/positive response formed another independent latent variable. While the five observed variables of evaluation of withdrawal response formed the last independent latent variable. The three independent observed variables of hostile interpretation, benign interpretation, and self-blame interpretation were also included in the structural model. The three dependent observed variables of anxiety depression, withdrawal, and somatic symptoms (scales of the Achenbach's YSR) formed the dependent latent variable – internalizing disorder. Reactive aggression and Proactive aggression formed the other two separate dependent observed variables.

It was proposed that all three dependent variables – internalizing disorder, reactive aggression, and proactive aggression were explained by rejection of benign interpretation and negative evaluation of assertive/positive response. At the same time, internalizing disorder was further explained by a self-blame interpretation and positive evaluation of withdrawal response. While reactive and proactive aggression were further explained by hostile interpretation and positive evaluation of hostile response. Covariance between the followings were computed: i) hostile interpretation and benign interpretation, ii) hostile interpretation and self-blame interpretation, iii) benign interpretation and self-blame interpretation, iv) hostile response evaluation and hostile interpretation, v) assertive/positive response evaluation and benign interpretation, vi) withdrawal response evaluation and self-blame interpretation, vii) hostile response evaluation and assertive/positive response evaluation, viii) hostile response evaluation and withdrawal response evaluation, and ix) assertive/positive response evaluation and withdrawal response evaluation.

Figure 2. Proposed Structural Model before modification

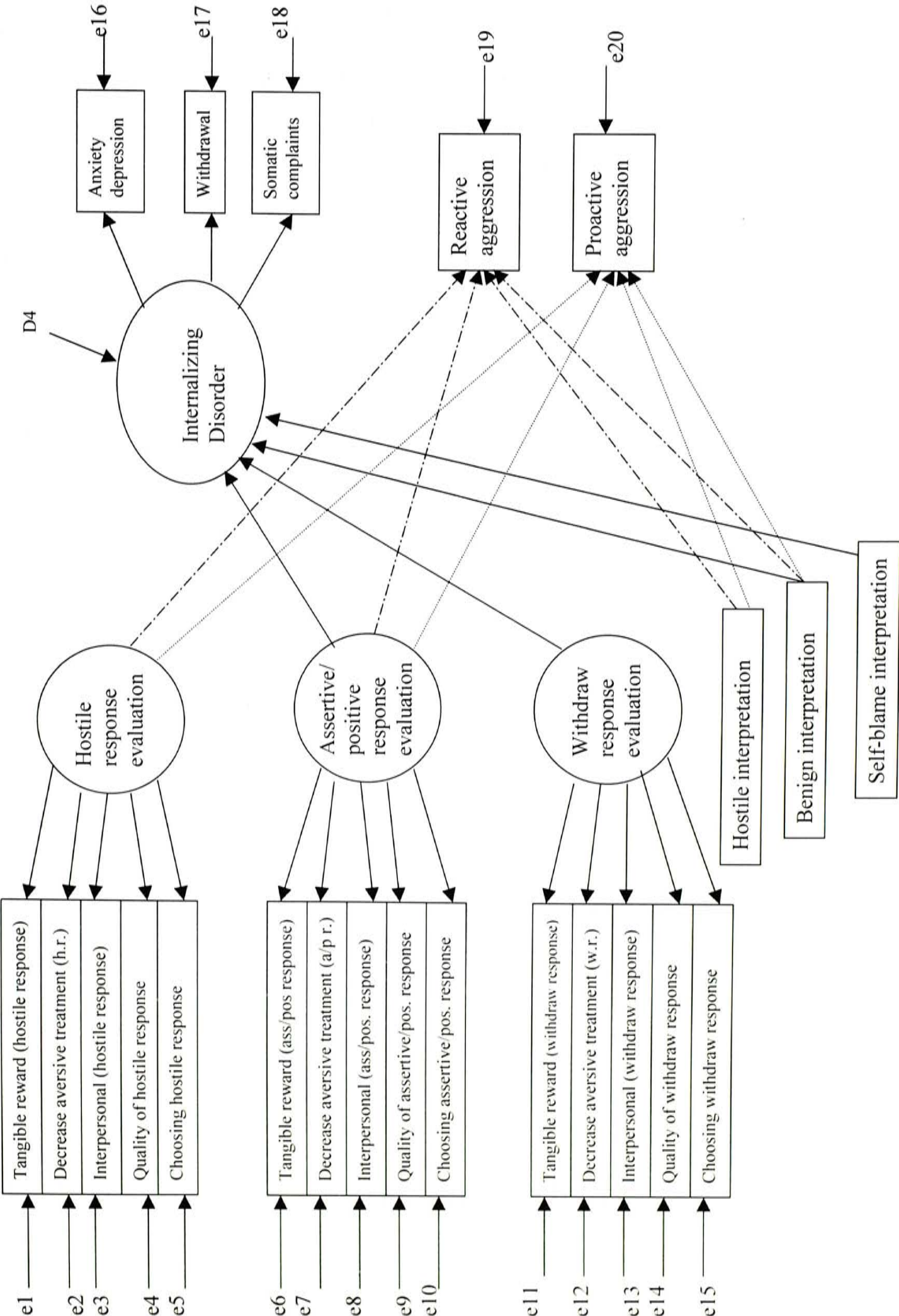
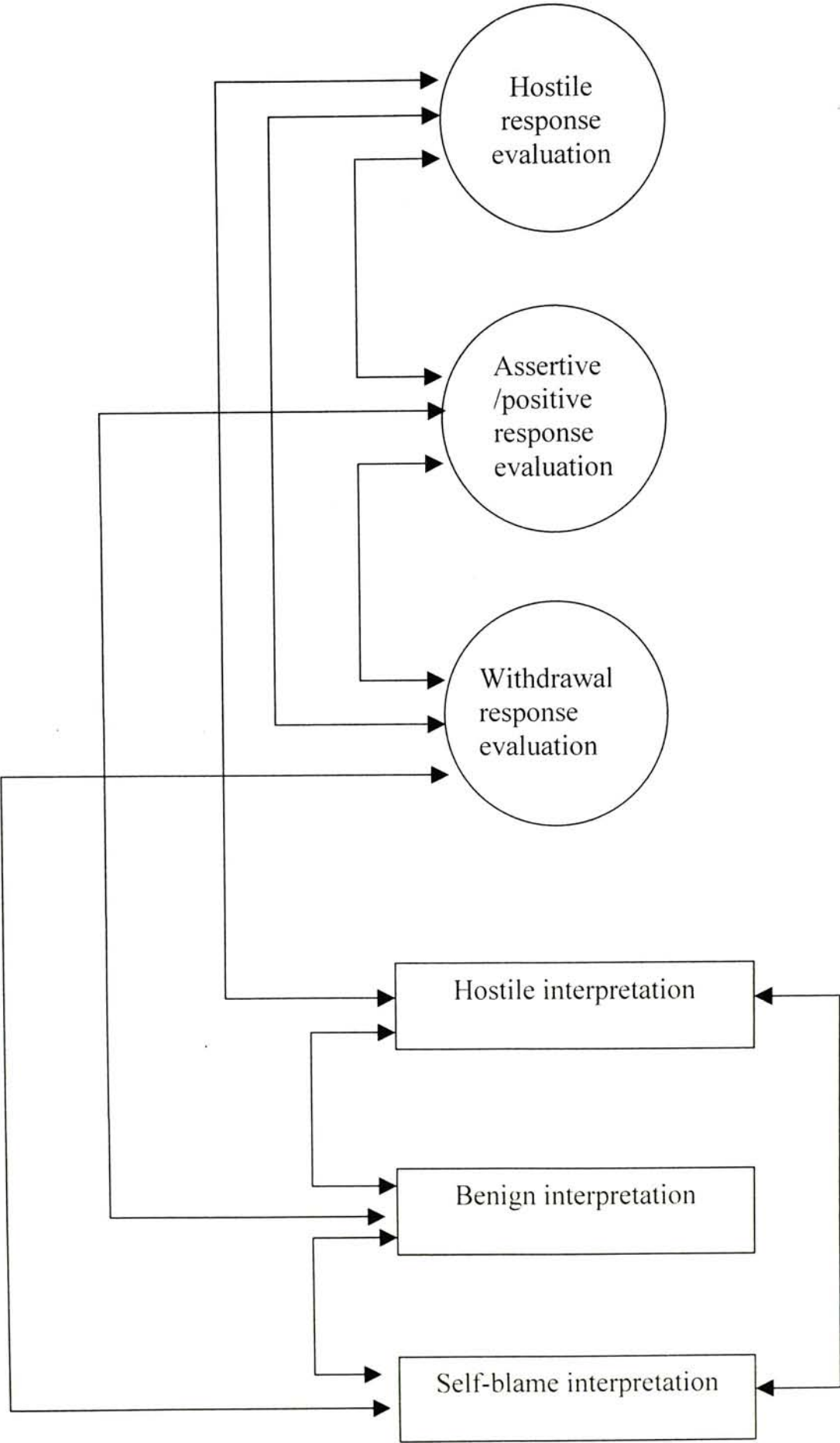


Figure 3. Correlation among independent variables of model before modification



EQS was used to test the goodness of fit of the proposed model. The model was not well fitted. $\chi^2 = 1873.837$, $df = 214$, $RMSEA = .117$, $NNFI = .697$, and $CFI = .744$.

As expected, path from hostile response evaluation to reactive aggression and path from hostile interpretation to proactive aggression were insignificant as suggested by WALD test. It had been hypothesized that reactive aggression was more affected by hostile interpretation than hostile response evaluation, while proactive aggression was more affected by hostile response evaluation than hostile interpretation. Therefore the path from hostile response evaluation to reactive aggression and the path from hostile interpretation to proactive aggression were dropped. In addition, paths from evaluation of assertive/positive response to the three dependent variables – internalizing disorder, reactive aggression, and proactive aggression, were found to be insignificant though the component observed variables of evaluation of assertive/positive response were found to be inversely correlated with the dependent variables.² This was probably because evaluation of assertive/positive response was strongly correlated with benign interpretation ($r = .679$). Possibly their contribution to the explanation of the dependent variables had been explained away by rejection of benign interpretation. Therefore such paths were dropped and the independent latent variable of assertive/positive response evaluation was removed from the model.

² Tangible reward (assertive/positive response), Interpersonal outcome (assertive/positive response), Quality of assertive/positive response, Choosing assertive/positive response and internalizing disorder, $r = -.169^{**}$, $-.09^{*}$, $-.178^{**}$, and $-.164^{**}$ respectively; Tangible reward (assertive/positive response), Decrease aversive treatment (assertive/positive response), Interpersonal outcome (assertive/positive response), Quality of assertive/positive response, Choosing assertive/positive response, and Reactive aggression, $r = -.167^{**}$, $-.086^{*}$, $-.111^{**}$, $-.190^{**}$, and $-.200^{**}$ respectively; Tangible reward (assertive/positive response), Decrease aversive treatment (assertive/positive response), Interpersonal outcome (assertive/positive response), Quality of assertive/positive response, Choosing assertive/positive response, and Proactive aggression, $r = -.251^{**}$, $-.150^{**}$, $-.122^{**}$, $-.261^{**}$, and $-.275^{**}$ respectively. (* $p < .05$, ** $p < .01$)

In addition, as decrease aversive treatment of all three types of response were found to have relatively low correlation between other evaluation variables and had insignificant correlation with the three dependent variables, therefore they were removed from the model. One possible explanation for the lack of correlation between decrease of aversive treatment and the three dependent variables was that different expectation for the responses to be effective in decreasing aversive treatment exists for the four types of situations. Unlike other response evaluation statements, expecting a decrease of aversive treatment was heavily dependent on whether one interpreted he / she had been treated aversively. If subjects were to feel they had been treated badly by others, it was easier for them to interpret in such a way in rejection and provocation situations rather than failure and loss situations. As a result, they were more likely to expect hostile response was a viable means to decrease aversive treatment in rejection and provocation situations than were in failure and loss situations. In order to verify this hypothesis, a separate score was calculated for the variable of decrease aversive treatment for the two category of situations: rejection and provocation, failure and loss. Correlation between such scores and the three dependent variables were computed. It was found that in rejection and provocation situations, expectation of hostile response being able to decrease aversive treatment had significant correlation with reactive aggression ($r = .140, p < .01$) and proactive aggression ($r = .156, p < .01$). However in failure and loss situations, the above correlation was insignificant.

As suggested by LM test, covariance between the followings were added: i) hostile interpretation and benign interpretation, ii) hostile interpretation and self-blame interpretation, iii) benign interpretation and self-blame interpretation, iv) hostile response evaluation and self-blame interpretation, v) hostile response evaluation and benign interpretation, vi) withdrawal response evaluation and benign interpretation, vii) withdrawal

response evaluation and hostile interpretation. Furthermore, five outliers were discarded from the data pool. A modified structural model was presented in figures 4 and 5.

Figure 4. Structural Model after modification with standardized path coefficients and standardized factor loadings

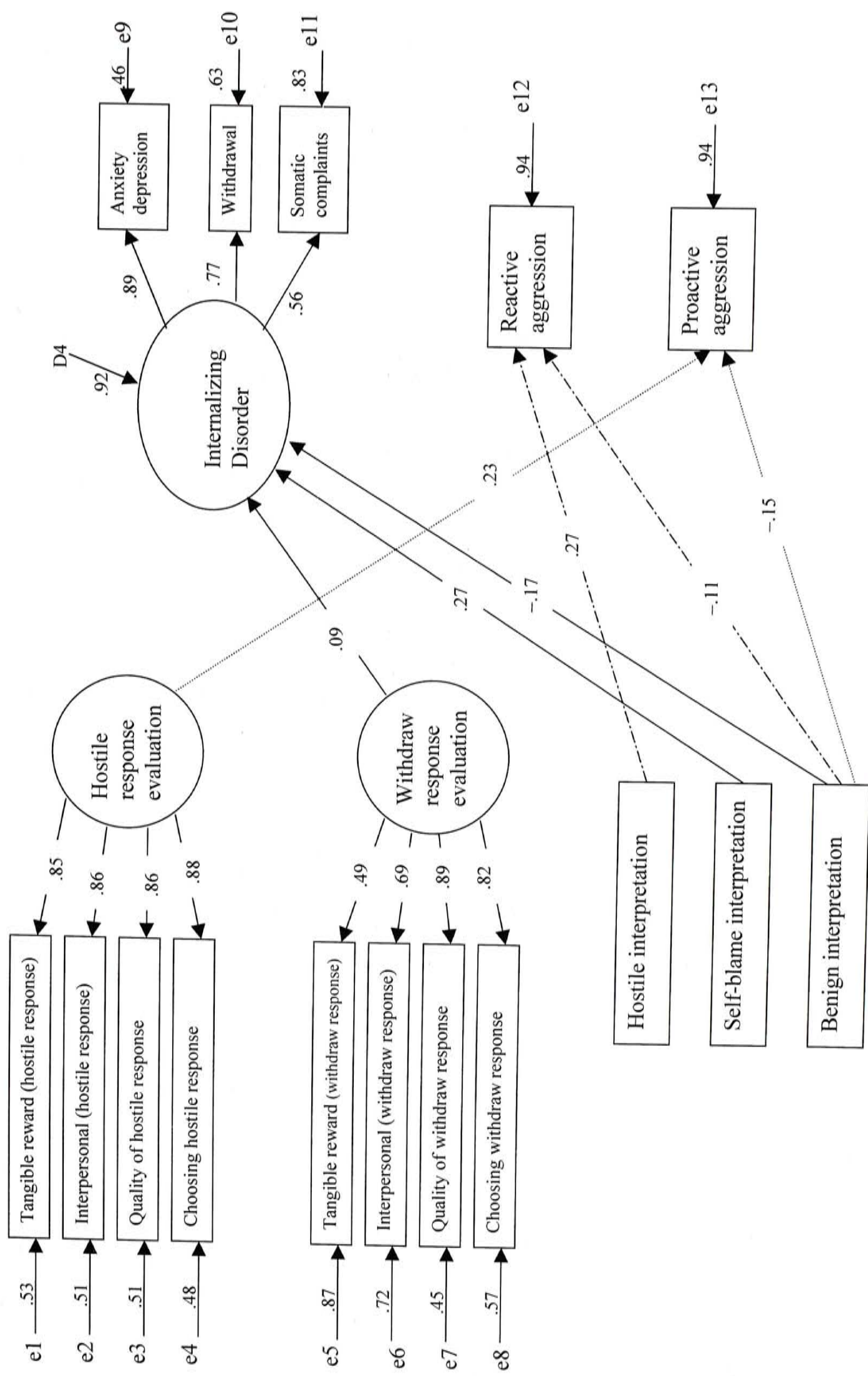
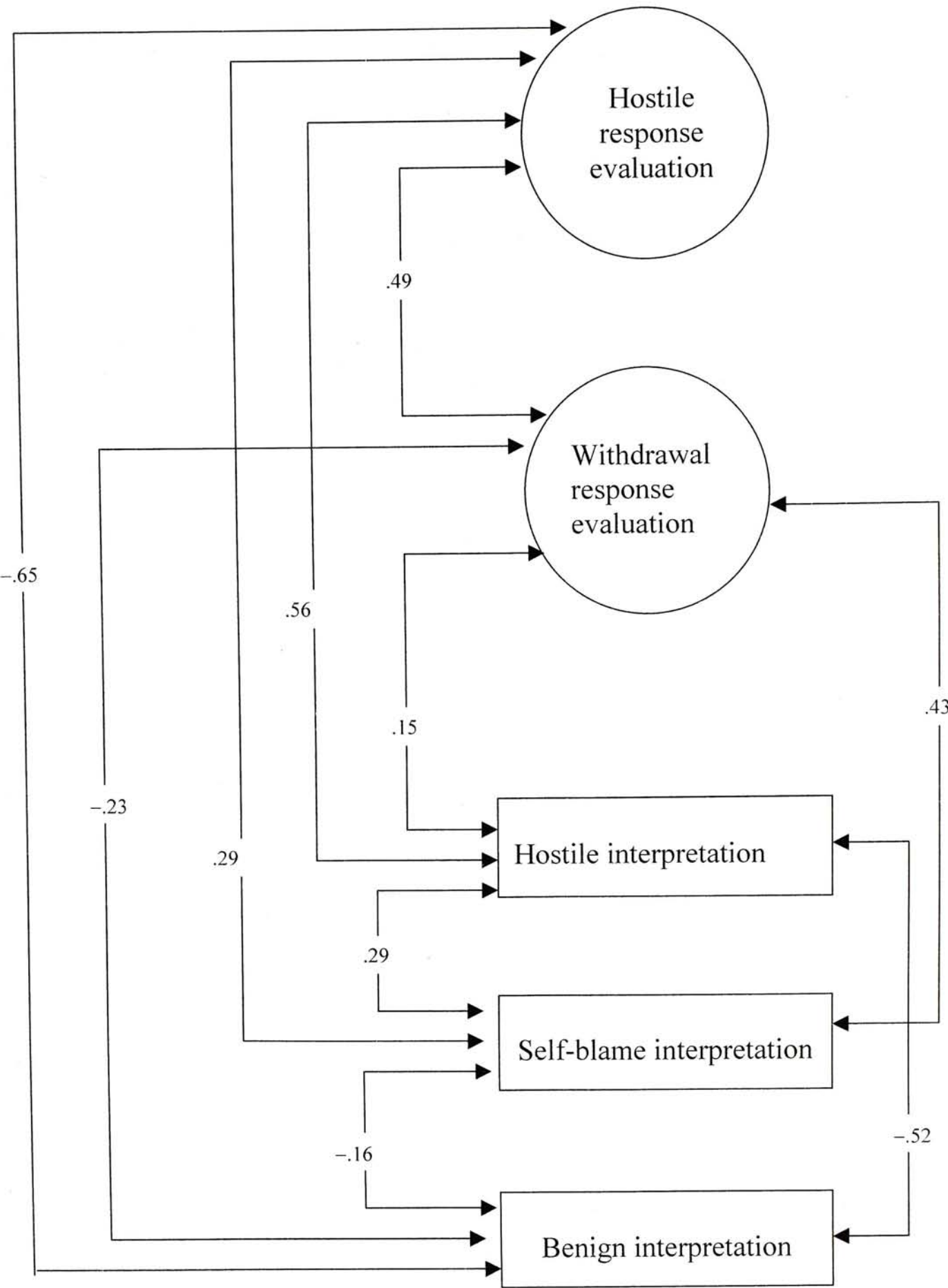


Figure 5. Correlation among independent variables of model after modification



The modified model was fitted with $\chi^2 = 457.478$, $df = 92$, $RMSEA = .084$, $NNFI = .891$, and $CFI = .916$. The model was considered as reasonably good fit. With respect to the dependent latent variable of internalizing disorder, there was significant direct effect from withdrawal response evaluation, self-blame interpretation, and rejection of benign interpretation. Regarding reactive aggression, there was significant direct effect from hostile interpretation and rejection of benign interpretation. With regard to proactive aggression, there was significant direct effect from hostile response evaluation and rejection of benign interpretation. Correlation between the following independent variables were found to be significant: i) hostile response evaluation and withdrawal response evaluation; ii) hostile interpretation and hostile response evaluation; iii) self-blame interpretation and withdrawal response evaluation; iv) hostile interpretation and benign interpretation; v) hostile interpretation and self-blame interpretation; vi) benign interpretation and self-blame interpretation; vii) hostile response evaluation and benign interpretation; viii) hostile response evaluation and self-blame interpretation; xi) withdrawal response evaluation and hostile interpretation; x) withdrawal response and benign interpretation.

Standardized path coefficients, factor loadings, and variables correlation were shown in figures 4 and 5.

To test the cross validation of the final model, the data set was split into two randomly selected samples and six outliers were deleted from the data pool. The final model was fitted again with the two split data sets. The first half of the data set produced a goodness of fit of $\chi^2 = 289.175$, $df = 92$, $RMSEA = .088$, $NNFI = .880$, and $CFI = .908$. All paths were significant. The second half of the data set produced a goodness of fit of $\chi^2 = 311.628$, $df = 92$, $RMSEA = .092$, $NNFI = .882$, and $CFI = .910$. However the path from benign interpretation to proactive aggression and the path from withdrawal response evaluation to internalizing disorder tendency were insignificant. Nonetheless, both models were

considered as reasonably good fit. Thus the final model was believed to have cross-validation and was expected to be able to generalized to other sample subjects.

Discussion

The findings of present study confirmed the social information-processing model. Interpretation of situations and response evaluation were found to be able to predict internalizing and externalizing disorders.

Prediction of internalizing disorder tendency by social information-processing factors

Internalizing disorder tendency was found to be correlated with endorsement of self-blame and hostile interpretation, which was consistent with findings of previous studies (Quiggle et al., 1992; Garber et al. 1991). Furthermore, a positive correlation between internalizing disorder and evaluation of withdrawal and hostile response, as well as an inverse evaluation between internalizing disorder and evaluation of assertive/positive response was found, which was consistent with Quiggle et al.'s (1992) findings. Subjects with internalizing disorder tendency tended to expect positive outcome from withdrawal response and evaluate assertive response negatively. Lastly, internalizing disorder tendency was found to be associated with rejection of benign interpretation. When different social information-processing variables were put into multiple regression, it was found that endorsement of self-blame interpretation had the strongest predictive power for internalizing disorder tendency, with rejection of benign interpretation being the second strongest. Expecting withdrawal response to bring tangible reward and disagreeing hostile response to bring instrumental and relational reward also found to have contribution to the prediction of internalizing disorder tendency. Similar findings were found in the structural equation model. Internalizing disorder was explained by self-blame interpretation, rejection of benign interpretation, and positive evaluation of withdrawal response. Such findings could be understood in Beck's

cognitive triad for depression (Beck, 1967, 1976). People with depression tend to make cognitive errors in which they think negatively about themselves, their immediate world, and their future. Therefore when given an ambiguous situation, subjects who tended to believe they were bad, that the others intentionally treated them badly, but they should be held responsible for the negative event resulted in their internalizing disorder tendency. However Beck had not considered how people's evaluation of withdrawal response might also contribute to their depression. The present study found that internalizing disorder was also explained by a positive evaluation of withdrawal response. To summarize, people who believed they were bad and were responsible for causing the negative event, who perceived withdrawal response as more positive tended to suffer from internalizing disorder.

Prediction of reactive aggression by social information-processing factors

On the other hand, regarding externalizing disorders, reactive aggression was found to be correlated with endorsement of hostile and self-blame interpretation. The pattern of such correlation differed from that between internalizing disorder and hostile and self-blame interpretation. Internalizing disorder was found to have greater correlation with self-blame interpretation than hostile interpretation, while for reactive aggression the correlation with hostile interpretation was greater than self-blame interpretation. In addition, reactive aggression was also correlated with the rejection of benign interpretation, the expectation that hostile response would bring instrumental and relational reward, positive rating of hostile response, the tendency to opt for hostile response, negative evaluation of assertive/positive response, and being boys. When different social information-processing variables were put into multiple regression, it was found that hostile interpretation had the strongest predictive power for reactive aggression, with sex being the second strongest. The tendency to opt for hostile response and disagreeing withdrawal response to bring positive outcome also contributed to the prediction of reactive aggression. In the structural equation model, it was

found that reactive aggression was explained by hostile interpretation and rejection of benign interpretation. To sum up, people who had strong attribution of hostile intent to ambiguous situations, who also perceived themselves as bad, but evaluated withdrawal response negatively opt for hostile responses. These factors can predict their reactive aggression tendency. Reactive aggression tendency was believed to be more decided by hostile interpretation than by positive evaluation of hostile response as the latter was unable to enter the regression formula.

Prediction of proactive aggression by social information-processing factors

Another type of externalizing disorders, proactive aggression, was found to be associated with the followings: hostile interpretation, rejection of benign interpretation, self-blame interpretation, expecting hostile response to bring instrumental and relational reward, positive rating of hostile response, preference for hostile response, negative evaluation of assertive/positive response, and being boys. Multiple regression analysis showed that the expectation of hostile response to bring both tangible and relational reward made the strongest prediction of proactive aggression. The next being rejection of benign interpretation and being boys. Therefore unlike reactive aggression, proactive aggression was believed to be resulted mostly from an expectation that acting out aggressively might bring tangible reward and being liked by peers, together with a rejection of benign interpretation. They acted out not because they felt that others had been hostile to them, but because they expected positive tangible and relational outcome after acting out. Present findings were consistent with those found by Dodge & Coie (1987), and Crick & Dodge (1996). They reported that reactively aggressive subjects were more likely to make hostile intent attribution than proactively aggressive subjects and non-aggressive subjects. Lastly, both reactive aggression and proactive aggression were found to be related to positive rating of the quality of hostile response and the belief that aggressive response was more effective

in bringing positive outcome, which were consistent with findings of previous studies (Crick & Ladd, 1991; Quiggle et al., 1992; Perry et al., 1986; Hart et al., 1990). A different finding was that while Quiggle et al. (1992) found that causal attributions (locus, stability, and specificity) was unrelated to aggression, the present study found a correlation of self-blame interpretation with both reactive aggression ($r = .083, p < .05$) and proactive aggression ($r = .109, p < .01$) though the correlation was minimal.

Cognitive distortion

One interesting finding in both internalizing and externalizing disorders was that rejection of benign interpretation was found to be an important factor in predicting and explaining internalizing disorder, reactive and proactive aggression. It was found that even when subjects were provided with benign explanation of the situations, they tended to disagree with such benign explanation and opt for a hostile or self-blame interpretation or both. Cognitive distortions might be involved in the interpretation process that resulted in the rejection of benign explanation and endorsement of hostile or self-blame interpretation. Beck (1976) described a number of cognitive distortions such as “all-or-none thinking”, “catastrophizing”, “discounting the positive”, “emotional reasoning”, “labeling”, “magnification/minimization”, “selective abstraction”, “mind reading”, “overgeneralization”, “personalization”, “should/must statements”, and “tunnel vision”. However the type(s) of cognitive distortions involved in the process needed to be further explored in details in future studies.

Differentiation of internalizing disorder, reactive aggression, and proactive aggression

Another contribution of the present study was the differentiation of the three types of disorders: internalizing, reactive aggression, and proactive aggression according to the relative importance of the different social information-processing stages. The majority of previous studies compared subjects with and without the disorders at different stages of the

social information-processing model. The present study provided a comparison of the importance of the different stages in their contribution to the prediction of the disorders of internalizing and externalizing. As hypothesized, internalizing disorder was reactive in nature. Self-blame interpretation and rejection of benign interpretation were proved to be the most significant factors in predicting and explaining internalizing disorder when compared with other social information-processing factors such as evaluation of response. This was shown by their greater standardized coefficients and path coefficients in multiple regression and structural equation model respectively. On the other hand, hostile interpretation and rejection of benign interpretation were found to be the most important factors in predicting and explaining reactive aggression when compared with response evaluation as shown by the coefficients in multiple regression and structural equation model. While for proactive aggression, expectation of hostile response bringing instrumental and relational reward and positive evaluation of hostile response were more important than interpretation factors in predicting and explaining proactive aggression. In short, both internalizing disorder and reactive aggression were determined more by early stage in the social information-processing model, i.e. interpretation; while proactive aggression was more determined by later stage of the model, i.e. response evaluation.

Implication to treatment of children having internalizing disorder, reactive aggression, and proactive aggression

A practical contribution of the present study was its implication to the intervention of the three disorders: internalizing, reactive aggression, and proactive aggression. In fact, there had been a number of intervention programs based on the social information-processing model. Chandler (1973) taught juvenile delinquents skills of perspective taking and understanding social cues. While Spivack, Platt, & Shure (1976) taught young behavior-problem children social problem-solving skills. More recently, Guerra & Slaby (1990)

developed a multifaceted treatment program for incarcerated violent adolescents using a social information-processing model of multiple cognitive steps in aggression. Hudley & Graham (1993) developed an intervention program for aggressive African American boys to reduce their tendency to make hostile attributions through: a) role play and discussion designed to help boys learn how to detect others' intentions accurately; b) brainstorming and discussion designed to help boys generate non-hostile interpretations to negative events; c) teaching boys decision rules that lead to non-aggressive behaviors. The implication of the findings of the present study was that since different social information-processing stages were more determining in internalizing disorder, reactive aggression, and proactive aggression, different interventions might be appropriate for each type of disorders. Interventions directed at internalizing disorder and reactive aggression should focus on modifying of interpretation, whereas interventions directed at proactive aggression should focus on response evaluation, particularly outcome expectancy.

Furthermore, as mentioned before that one common factor in explaining internalizing disorder, reactive aggression, and proactive aggression was rejection of benign interpretation. The problem appeared to be the presence of cognitive distortion that led to the rejection of benign interpretation even when given such interpretation. The implication for such finding was that simply asking patients suffering from internalizing or externalizing disorders to generate alternative interpretation of situations in cognitive therapy might not be effective. It was because even if such patients could generate or were provided with alternative benign interpretation, they would reject such benign interpretation probably due to cognitive distortion. Therefore the cognitive distortion had to be discovered and dealt with for intervention to be effective.

Cross validation of the structural model

Split-half cross validation of the final structural model showed that the final model was largely similar to those generated from the two split samples. Though in the latter model, two of the paths – withdrawn response evaluation to internalizing disorder tendency and benign interpretation to proactive aggression – were found to be insignificant with one of the samples, the more important paths from self-blame interpretation to internalizing disorder tendency, from hostile interpretation to reactive aggression, and from hostile response evaluation to proactive aggression remained significant. The path loadings of the two insignificant paths before cross validation were small when compared to other paths (.09 and .15 respectively), therefore the paths became insignificant with minor variation in the sample was too unexpected.

Construct validity of the measures of independent variables

Twelve hypothetical stories and statements regarding intent attribution and response evaluation were generated to measure the independent variables in the present study. Though the main interest of the present study was not to develop an inventory measuring subjects' cognitive processes, yet if looking at the present study as a psychometric study, the questionnaire measuring the independent variables was considered as having construct validity. This was because the cognitive variables were found to be related with the psychopathology as theoretically hypothesized.

Limitations of the present research and future directions

One major limitation of the present study was that only two stages of the social information-processing model were included in the study. How the stages other than interpretation stage and response evaluation stage contribute to the prediction and explanation of the disorders and their relative importance were not known. Therefore it is recommended that variables of more stages to be included in further studies in order to shed light on this.

On the other hand, one potential limitation was that information was obtained from one single source – the adolescents only. Ideally it would be better if information from other source such as teachers' ratings were obtained also. However as mentioned before, there were difficulties in collecting data from teachers, i.e. students might be more controlled in front of teachers and teacher-students ratio was large. Although the source of information for the independent variables and dependent variables was the same in the present study (i.e. rated by the adolescents themselves), the content of the items measuring the independent and dependent variables was different and they measured different things. The items measuring the independent variables were in fact measuring the judgement regarding some hypothetical situations while those measuring the dependent variables were behavior descriptions of the adolescents themselves. Another limitation was that questionnaires were used in collecting data in the present study concerning whether subjects agreed or disagreed with certain interpretation and response evaluation. It is recommended that open interview may be used in the future to discover the reason why subjects opt for or reject different interpretation in order to find out the cognitive process that led to the distortion of interpretation of subjects. Lastly, non-clinical sample was used in the present study. As a result the variation of behavior was more restricted, leading to relatively weak correlation between independent variables and dependent variables.

To sum up, the present study provide support for the social information-processing model that interpretation of situations and response evaluation predicted and explained internalizing and externalizing disorder tendency. In addition, internalizing disorder, reactive aggression, and proactive aggression were differentiated by the relative importance of different stages in social information-processing model in their contribution to the prediction of the disorders. There are implications of different focus of intervention to be considered when directing to different disorders. Lastly the directions of further studies were to compare

the relative importance of other stages of the social information-processing model and did not restrict to the study of interpretation and response evaluation stages. Furthermore, the cognitive process that led to the distortion of interpretation and response evaluation should also be studied.

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Appendix I

性別：_____ 年齡：_____ 班級：_____

請細心閱讀以下假設的情況，然後圈上適當的答案。假若你認為可供選擇之答案並不適用於那條題目，請圈上「不適用」。答案並沒有對錯之分，所有資料只會作研究之用途，絕對保密，請依你的心意回答。多謝合作！

情況一

你昨天請了病假，所以你向坐在你身旁的同學借昨天上課的筆記來看。你的同學回答說：「我現在不能借給你，你遲些時候再問我」。

你會認為：

	十分不同意	不同意	同意	十分同意
1. 那位同學根本有意不借給我，十分自私。	1	2	3	4
2. 那位同學可能因自己有用，所以不能借給我。	1	2	3	4
3. 那位同學根本不想借給我，因為我是個不受歡迎的人。	1	2	3	4

以下是三種不同的處理方法：

第一個處理方法是：

惡言責罵那位同學是個自私的人。

你認為：

	十分不同意	不同意	同意	十分同意	
1. 這個方法能令那位同學借筆記給你。	1	2	3	4	
2. 這個方法能令那位同學不再對你不友善。	十分不同意 1	不同意 2	同意 3	十分同意 4	不適用 5
3. 這個方法會令那位同學	很討厭你 1	討厭你 2	喜歡你 3	很喜歡你 4	
4. 這個方法是個	很差的方法 1	差的方法 2	好的方法 3	很好的方法 4	
你會否使用這個方法或類似的方法？	一定不會 1	不會 2	會 3	一定會 4	

第二個處理方法是：

問那位同學為什麼不能借筆記給你，嘗試了解原因，然後再問那位同學何時才可借給你。

你認為：

	十分不同意	不同意	同意	十分同意	
1. 這個方法能令那位同學借筆記給你。	1	2	3	4	
2. 這個方法能令那位同學不再對你不友善。	十分不同意 1	不同意 2	同意 3	十分同意 4	不適用 5
3. 這個方法會令那位同學	很討厭你 1	討厭你 2	喜歡你 3	很喜歡你 4	

	很差的方法	差的方法	好的方法	很好的方法
	1	2	3	4
4. 這個方法是個	一定不會	不會	會	一定會
你會否使用這個方法或類似的方法？	1	2	3	4

第三個處理方法是：
不發一言，心中十分難受，不敢再問那位同學借筆記。
你認為：

	十分不同意	不同意	同意	十分同意
	1	2	3	4
1. 這個方法能令那位同學借筆記給你。	十分不同意	不同意	同意	十分同意
	1	2	3	4
2. 這個方法能令那位同學不再對你不友善。	十分不同意	不同意	同意	十分同意
	1	2	3	4
3. 這個方法會令那位同學	很討厭你	討厭你	喜歡你	很喜歡你
	1	2	3	4
4. 這個方法是個	很差的方法	差的方法	好的方法	很好的方法
	1	2	3	4
你會否使用這個方法或類似的方法？	一定不會	不會	會	一定會
	1	2	3	4

情況二
你知道有一齣電影十分精彩。你問你的朋友這個週末有沒有興趣一起去看戲。他說不能夠去。
你會認為：

	十分不同意	不同意	同意	十分同意
	1	2	3	4
1. 那位朋友根本有意不和我去看電影，扮高寶。	1	2	3	4
2. 那位朋友可能那天有事，沒有空一起去看電影。	1	2	3	4
3. 因為我是一個不受歡迎的人，所以那位朋友不想和我去看電影。	1	2	3	4

以下是三種不同的處理方法：

第一個處理方法是：
冷言相向，說：「唔去咪唔去，好叻咩」。
你認為：

	十分不同意	不同意	同意	十分同意
	1	2	3	4
1. 這個方法能令那位朋友與你一起去看電影。	十分不同意	不同意	同意	十分同意
	1	2	3	4
2. 這個方法能令那位朋友不再對你不友善。	十分不同意	不同意	同意	十分同意
	1	2	3	4
3. 這個方法會令那位朋友	很討厭你	討厭你	喜歡你	很喜歡你
	1	2	3	4
4. 這個方法是個	很差的方法	差的方法	好的方法	很好的方法
	1	2	3	4
你會否使用這個方法或類似的方法？	一定不會	不會	會	一定會
	1	2	3	4

第二個處理方法是：
問那位朋友為什麼不能去，嘗試了解原因並改約另一個日子。
你認為：

	十分不同意	不同意	同意	十分同意	
	1	2	3	4	
1. 這個方法能令那位朋友與你一起去看電影。	十分不同意	不同意	同意	十分同意	不適用
	1	2	3	4	5
2. 這個方法能令那位朋友不再對你不友善。	很討厭你	討厭你	喜歡你	很喜歡你	
	1	2	3	4	
3. 這個方法會令那位朋友	很差的方法	差的方法	好的方法	很好的方法	
	1	2	3	4	
4. 這個方法是個	一定不會	不會	會	一定會	
	1	2	3	4	
你會否使用這個方法或類似的方法？					

第三個處理方法是：
心中十分難受，不敢再邀請那位朋友去看電影。
你認為：

	十分不同意	不同意	同意	十分同意	
	1	2	3	4	
1. 這個方法能令那位朋友與你一起去看電影。	十分不同意	不同意	同意	十分同意	不適用
	1	2	3	4	5
2. 這個方法能令那位朋友不再對你不友善。	很討厭你	討厭你	喜歡你	很喜歡你	
	1	2	3	4	
3. 這個方法會令那位朋友	很差的方法	差的方法	好的方法	很好的方法	
	1	2	3	4	
4. 這個方法是個	一定不會	不會	會	一定會	
	1	2	3	4	
你會否使用這個方法或類似的方法？					

情況三

你希望與一位同學一起溫習功課。你問那位同學今天放學後可否與你一起溫習功課，可是你的同學拒絕了。
你會認為：

	十分不同意	不同意	同意	十分同意
1. 那位同學自視過高，根本有意不與我一起溫習功課。	1	2	3	4
2. 那位同學可能不明白一起溫習功課的好處，所以才拒絕我。	1	2	3	4
3. 那位同學根本不想與我一起溫習，因為我是個沒有用的人。	1	2	3	4

以下是三種不同的處理方法：

第一個處理方法是：
惡言責罵那位同學。

你認為：

	十分不同意	不同意	同意	十分同意	
1. 這個方法能令那位同學答應與你一起溫習。	1	2	3	4	
2. 這個方法能令那位同學不再對你不友善。	十分不同意 1	不同意 2	同意 3	十分同意 4	不適用 5
3. 這個方法會令那位同學	很討厭你 1	討厭你 2	喜歡你 3	很喜歡你 4	
4. 這個方法是個	很差的方法 1	差的方法 2	好的方法 3	很好的方法 4	
你會否使用這個方法或類似的方法？	一定不會 1	不會 2	會 3	一定會 4	

第二個處理方法是：

問那位同學為什麼不能與你一起溫習，嘗試了解原因，向他解釋一起溫習的好處並再次邀請他。

你認為：

	十分不同意	不同意	同意	十分同意	
1. 這個方法能令那位同學答應與你一起溫習。	1	2	3	4	
2. 這個方法能令那位同學不再對你不友善。	十分不同意 1	不同意 2	同意 3	十分同意 4	不適用 5
3. 這個方法會令那位同學	很討厭你 1	討厭你 2	喜歡你 3	很喜歡你 4	
4. 這個方法是個	很差的方法 1	差的方法 2	好的方法 3	很好的方法 4	
你會否使用這個方法或類似的方法？	一定不會 1	不會 2	會 3	一定會 4	

第三個處理方法是：

心中十分難受，不敢再問那位同學。

你認為：

	十分不同意	不同意	同意	十分同意	
1. 這個方法能令那位同學答應與你一起溫習。	1	2	3	4	
2. 這個方法能令那位同學不再對你不友善。	十分不同意 1	不同意 2	同意 3	十分同意 4	不適用 5
3. 這個方法會令那位同學	很討厭你 1	討厭你 2	喜歡你 3	很喜歡你 4	
4. 這個方法是個	很差的方法 1	差的方法 2	好的方法 3	很好的方法 4	
你會否使用這個方法或類似的方法？	一定不會 1	不會 2	會 3	一定會 4	

情況四

上體育課時舉行了一次接力賽跑，以四人為一隊。你的隊伍跑輸了。

你會認為：

	十分不同意	不同意	同意	十分同意
1. 你的同組同學跑得太慢，連累了你輸了比賽。	1	2	3	4
2. 比賽中有輸有贏是平常事，不用太介懷。	1	2	3	4
3. 全因自己跑得太慢，才連累同學輸了比賽。	1	2	3	4

以下是三種不同的處理方法：

第一個處理方法是：
責怪你的同學跑得太慢。
你認為：

1. 這個方法能令你和你的同組同學下次 勝出比賽。	十分不同意 1	不同意 2	同意 3	十分同意 4	
2. 這個方法能防止你的同學取笑你。	十分不同意 1	不同意 2	同意 3	十分同意 4	不適用 5
3. 這個方法會令你的同學	很討厭你 1	討厭你 2	喜歡你 3	很喜歡你 4	
4. 這個方法是個	很差的方法 1	差的方法 2	好的方法 3	很好的方法 4	
你會否使用這個方法或類似的方法？	一定不會 1	不會 2	會 3	一定會 4	

第二個處理方法是：
安慰大家輸了比賽不要緊，贏輸並不太重要，下次努力跑快點便是了。
你認為：

1. 這個方法能令你和你的同組同學下次勝出比賽。	十分不同意 1	不同意 2	同意 3	十分同意 4	
2. 這個方法能防止你的同學取笑你。	十分不同意 1	不同意 2	同意 3	十分同意 4	不適用 5
3. 這個方法會令你的同學	很討厭你 1	討厭你 2	喜歡你 3	很喜歡你 4	
4. 這個方法是個	很差的方法 1	差的方法 2	好的方法 3	很好的方法 4	
你會否使用這個方法或類似的方法？	一定不會 1	不會 2	會 3	一定會 4	

第三個處理方法是：
向同學賠罪，說都怪自己跑得太慢。
你認為：

1. 這個方法能令你和你的同組同學下次勝出比賽。	十分不同意 1	不同意 2	同意 3	十分同意 4	
2. 這個方法能防止你的同學取笑你。	十分不同意 1	不同意 2	同意 3	十分同意 4	不適用 5
3. 這個方法會令你的同學	很討厭你 1	討厭你 2	喜歡你 3	很喜歡你 4	

	很差的方法	差的方法	好的方法	很好的方法
	1	2	3	4
4. 這個方法是個	一定不會	不會	會	一定會
你會否使用這個方法或類似的方法？	1	2	3	4

情況五

歷史老師要同學分四人一組去完成一個小組功課。你和另外三位同學分工合作完成了那份功課。可是老師卻給了你們一個較其它組差的分數。
你會認為：

	十分不同意	不同意	同意	十分同意
1. 因同組的同學做得差，連累你得了一個較差的分數。	1	2	3	4
2. 認為大家都盡了力，下次再努力做好一點便是了。	1	2	3	4
3. 一定是自己負責的那部份做得差，連累其他同學得了較差的分數。	1	2	3	4

以下是三種不同的處理方法：

第一個處理方法是：
責怪同組同學做得差。
你認為：

1. 這個方法能令你和你的同組同學下次取得好成績。	十分不同意 1	不同意 2	同意 3	十分同意 4	
2. 這個方法能防止你的同學取笑你。	十分不同意 1	不同意 2	同意 3	十分同意 4	不適用 5
3. 這個方法會令你的同學	很討厭你 1	討厭你 2	喜歡你 3	很喜歡你 4	
4. 這個方法是個	很差的方法 1	差的方法 2	好的方法 3	很好的方法 4	
你會否使用這個方法或類似的方法？	一定不會 1	不會 2	會 3	一定會 4	

第二個處理方法是：
安慰大家說各人都盡了力，下次再努力做好點便是了。
你認為：

1. 這個方法能令你和你的同組同學下次取得好成績。	十分不同意 1	不同意 2	同意 3	十分同意 4	
2. 這個方法能防止你的同學取笑你。	十分不同意 1	不同意 2	同意 3	十分同意 4	不適用 5
3. 這個方法會令你的同學	很討厭你 1	討厭你 2	喜歡你 3	很喜歡你 4	
4. 這個方法是個	很差的方法 1	差的方法 2	好的方法 3	很好的方法 4	
你會否使用這個方法或類似的方法？	一定不會 1	不會 2	會 3	一定會 4	

第三個處理方法是：
自我指責，向同學說都怪自己做得差。
你認為：

	十分不同意	不同意	同意	十分同意	
	1	2	3	4	
1. 這個方法能令你和你的同組同學下次取得好成績。					
	十分不同意	不同意	同意	十分同意	不適用
	1	2	3	4	5
2. 這個方法能防止你的同學取笑你。					
	很討厭你	討厭你	喜歡你	很喜歡你	
	1	2	3	4	
3. 這個方法會令你的同學					
	很差的方法	差的方法	好的方法	很好的方法	
	1	2	3	4	
4. 這個方法是個					
	一定不會	不會	會	一定會	
	1	2	3	4	
你會否使用這個方法或類似的方法？					

情況六
今天上課時進行了分組問答比賽，你所屬的那組成了全班最低分的那組。
你會認為：

	十分不同意	不同意	同意	十分同意
	1	2	3	4
1. 全因你的同組同學答得差，連累你「包尾」。				
2. 大家都已盡了力，輸了也不用太介懷。	1	2	3	4
3. 因自己蠢，不懂得答問題，連累同組同學「包尾」。	1	2	3	4

以下是三種不同的處理方法：

第一個處理方法是：
責怪同組同學答得差。
你認為：

1. 這個方法能令你和你的同組同學下次贏得問答比賽。	十分不同意 1	不同意 2	同意 3	十分同意 4	
2. 這個方法能防止你的同學取笑你。	十分不同意 1	不同意 2	同意 3	十分同意 4	不適用 5
3. 這個方法會令你的同學	很討厭你 1	討厭你 2	喜歡你 3	很喜歡你 4	
4. 這個方法是個	很差的方法 1	差的方法 2	好的方法 3	很好的方法 4	
你會否使用這個方法或類似的方法？	一定不會 1	不會 2	會 3	一定會 4	

第二個處理方法是：
安慰大家說各人都盡了力，下次再努力做好點便是了。
你認為：

1. 這個方法能令你和你的同組同學下次贏得問答比賽。	十分不同意 1	不同意 2	同意 3	十分同意 4	
2. 這個方法能防止你的同學取笑你。	十分不同意 1	不同意 2	同意 3	十分同意 4	不適用 5
3. 這個方法會令你的同學	很討厭你 1	討厭你 2	喜歡你 3	很喜歡你 4	
4. 這個方法是個	很差的方法 1	差的方法 2	好的方法 3	很好的方法 4	
你會否使用這個方法或類似的方法？	一定不會 1	不會 2	會 3	一定會 4	

第三個處理方法是：
心中十分傷心，自我指責。
你認為：

1. 這個方法能令你和你的同組同學下次贏得問答比賽。	十分不同意 1	不同意 2	同意 3	十分同意 4	
2. 這個方法能防止你的同學取笑你。	十分不同意 1	不同意 2	同意 3	十分同意 4	不適用 5
3. 這個方法會令你的同學	很討厭你 1	討厭你 2	喜歡你 3	很喜歡你 4	
4. 這個方法是個	很差的方法 1	差的方法 2	好的方法 3	很好的方法 4	
你會否使用這個方法或類似的方法？	一定不會 1	不會 2	會 3	一定會 4	

情況七
你中午時到小食店買了汽水。在操場上有一位同學行過並碰到你，令你打翻了汽水。
你會認為：

1. 那位同學有意碰撞我，存心作弄我。	十分不同意 1	不同意 2	同意 3	十分同意 4
2. 那位同學只是不小心撞到我。	1	2	3	4
3. 是我自己不小心以致打翻了汽水。	1	2	3	4

以下是三種不同的處理方法：

第一個處理方法是：
質問那位同學為什麼碰撞你，惡言責罵他，並要他賠你汽水。
你認為：

1. 這個方法能令那位同學向我道歉，甚至作出賠償，例如賠我汽水或食物。	十分不同意 1	不同意 2	同意 3	十分同意 4	
2. 這個方法能令那位同學不再作弄你。	十分不同意 1	不同意 2	同意 3	十分同意 4	不適用 5
3. 這個方法會令那位同學	很討厭你 1	討厭你 2	喜歡你 3	很喜歡你 4	

	很差的方法	差的方法	好的方法	很好的方法
	1	2	3	4
4. 這個方法是個	一定不會	不會	會	一定會
你會否使用這個方法或類似的方法？	1	2	3	4

第二個處理方法是：
說不要緊，因為只是意外。
你認為：

1. 這個方法能令那位同學向我道歉，甚至作出賠償，例如賠我汽水或食物。	十分不同意 1	不同意 2	同意 3	十分同意 4	
2. 這個方法能令那位同學不再作弄你。	十分不同意 1	不同意 2	同意 3	十分同意 4	不適用 5
3. 這個方法會令那位同學	很討厭你 1	討厭你 2	喜歡你 3	很喜歡你 4	
4. 這個方法是個	很差的方法 1	差的方法 2	好的方法 3	很好的方法 4	
你會否使用這個方法或類似的方法？	一定不會 1	不會 2	會 3	一定會 4	

第三個處理方法是：
心中十分難受，卻不敢發一言，低著頭離開。
你認為：

1. 這個方法能令那位同學向我道歉，甚至作出賠償，例如賠我汽水或食物。	十分不同意 1	不同意 2	同意 3	十分同意 4	
2. 這個方法能令那位同學不再作弄你。	十分不同意 1	不同意 2	同意 3	十分同意 4	不適用 5
3. 這個方法會令那位同學	很討厭你 1	討厭你 2	喜歡你 3	很喜歡你 4	
4. 這個方法是個	很差的方法 1	差的方法 2	好的方法 3	很好的方法 4	
你會否使用這個方法或類似的方法？	一定不會 1	不會 2	會 3	一定會 4	

情況八

老師要同學們買一本書下星期上課時用。你托你的同學到書局買書時多買一本給你。可是到了下星期上課你問那位同學時，卻發現他忘記了幫你買。
你會認為：

1. 那位同學根本有意不替你買書，令你上課沒書用。	十分不同意	不同意	同意	十分同意
	1	2	3	4
2. 那位同學可能一時大意，所以才忘記了替我買書。	1	2	3	4
3. 因為我是個不受歡迎的人，所以那位同學不幫我買書。	1	2	3	4

以下是三種不同的處理方法：

第一個處理方法是：
惡言責罵那位同學，要他把自己的書讓給你。
你認為：

	十分不同意	不同意	同意	十分同意	
	1	2	3	4	
1. 這個方法能令你有書溫習。					
2. 這個方法能令那位同學不再對你不友善。	十分不同意	不同意	同意	十分同意	不適用
	1	2	3	4	5
	很討厭你	討厭你	喜歡你	很喜歡你	
	1	2	3	4	
3. 這個方法會令那位同學					
	很差的方法	差的方法	好的方法	很好的方法	
	1	2	3	4	
4. 這個方法是個					
	一定不會	不會	會	一定會	
	1	2	3	4	
你會否使用這個方法或類似的方法？					

第二個處理方法是：
向那位同學提議暫時兩份交替使用那本書，直至你買到那本書為止。
你認為：

	十分不同意	不同意	同意	十分同意	
1. 這個方法能令你有書溫習。	1	2	3	4	
2. 這個方法能令那位同學不再對你不友善。	十分不同意 1	不同意 2	同意 3	十分同意 4	不適用 5
3. 這個方法會令那位同學	很討厭你 1	討厭你 2	喜歡你 3	很喜歡你 4	
4. 這個方法是個	很差的方法 1	差的方法 2	好的方法 3	很好的方法 4	
你會否使用這個方法或類似的方法？	一定不會 1	不會 2	會 3	一定會 4	

第三個處理方法是：
心中十分難受，卻不敢發一言。
你認為：

	十分不同意	不同意	同意	十分同意	
1. 這個方法能令你有書溫習。	1	2	3	4	
2. 這個方法能令那位同學不敢再對你不友善。	十分不同意 1	不同意 2	同意 3	十分同意 4	不適用 5
3. 這個方法會令那位同學	很討厭你 1	討厭你 2	喜歡你 3	很喜歡你 4	
4. 這個方法是個	很差的方法 1	差的方法 2	好的方法 3	很好的方法 4	
你會否使用這個方法或類似的方法？	一定不會 1	不會 2	會 3	一定會 4	

情況九

上體育課時老師叫同學們分組在球場的不同角落打排球。當你正在與同組的同學打排球時，你被另一組同學的排球從後打中。

你會認為：

	十分不同意	不同意	同意	十分同意
1. 那組同學有意用排球打我，存心作弄我。	1	2	3	4
2. 那組同學只是不小心打中我。	1	2	3	4
3. 也許是我運氣差，所以才被球擊中。	1	2	3	4

以下是三種不同的處理方法：

第一個處理方法是：

質問那組同學為什麼用排球打你，惡言責罵他們，並要他們向你賠罪。

你認為：

	十分不同意	不同意	同意	十分同意	
1. 這個方法能令你不再被排球打中。	1	2	3	4	
2. 這個方法能令那組同學不再作弄你。	十分不同意 1	不同意 2	同意 3	十分同意 4	不適用 5
3. 這個方法會令那組同學	很討厭你 1	討厭你 2	喜歡你 3	很喜歡你 4	
4. 這個方法是個	很差的方法 1	差的方法 2	好的方法 3	很好的方法 4	
你會否使用這個方法或類似的方法？	一定不會 1	不會 2	會 3	一定會 4	

第二個處理方法是：

說不要緊，因為只是意外，然後繼續打球。

你認為：

	十分不同意	不同意	同意	十分同意	
1. 這個方法能令你不再被排球打中。	1	2	3	4	
2. 這個方法能令那組同學不再作弄你。	十分不同意 1	不同意 2	同意 3	十分同意 4	不適用 5
3. 這個方法會令那組同學	很討厭你 1	討厭你 2	喜歡你 3	很喜歡你 4	
4. 這個方法是個	很差的方法 1	差的方法 2	好的方法 3	很好的方法 4	
你會否使用這個方法或類似的方法？	一定不會 1	不會 2	會 3	一定會 4	

第三個處理方法是：

心中十分難受，卻不敢發一言，勉強裝作沒事繼續打球。

你認為：

	十分不同意	不同意	同意	十分同意
1. 這個方法能令你不再被排球打中。	1	2	3	4

	十分不同意	不同意	同意	十分同意	不適用
2. 這個方法能令那組同學不再作弄你。	1	2	3	4	5
	很討厭你	討厭你	喜歡你	很喜歡你	
3. 這個方法會令那組同學	1	2	3	4	
	很差的方法	差的方法	好的方法	很好的方法	
4. 這個方法是個	1	2	3	4	
	一定不會	不會	會	一定會	
你會否使用這個方法或類似的方法？	1	2	3	4	

情況十

你的父母打算離婚。

你會認為：

1. 上天對你真不公平，令你不能像其他人一樣擁有一個幸福家庭。	十分不同意	不同意	同意	十分同意
	1	2	3	4
2. 其實弄到離婚這個地步，大家也不想的。既然父母認為這是唯一解決問題的方法，也許分開能令大家開心一些。	1	2	3	4
3. 是我不好，所以父母要離婚。	1	2	3	4

以下是三種不同的處理方法：

第一個處理方法是：

怨天尤人，憤世嫉俗。

你認為：

	十分不同意	不同意	同意	十分同意	
1. 這個方法能減少你心理上所受的打擊。	1	2	3	4	
	十分不同意	不同意	同意	十分同意	不適用
2. 這個方法能防止你的同學取笑你。	1	2	3	4	5
	很討厭你	討厭你	喜歡你	很喜歡你	
3. 這個方法會令你的父母	1	2	3	4	
	很差的方法	差的方法	好的方法	很好的方法	
4. 這個方法是個	1	2	3	4	
	一定不會	不會	會	一定會	
你會否使用這個方法或類似的方法？	1	2	3	4	

第二個處理方法是：

自我開解，體諒父母，努力面對新生活。

你認為：

	十分不同意	不同意	同意	十分同意	
1. 這個方法能減少你心理上所受的打擊。	1	2	3	4	
	十分不同意	不同意	同意	十分同意	不適用
2. 這個方法能防止你的同學取笑你。	1	2	3	4	5
	很討厭你	討厭你	喜歡你	很喜歡你	
3. 這個方法會令你的父母	1	2	3	4	

4. 這個方法是個

很差的方法	差的方法	好的方法	很好的方法
1	2	3	4
一定不會	不會	會	一定會
1	2	3	4

你會否使用這個方法或類似的方法？

第三個處理方法是：
獨自傷心，自怨自艾。
你認為：

1. 這個方法能減少你心理上所受的打擊。

十分不同意	不同意	同意	十分同意	
1	2	3	4	
十分不同意	不同意	同意	十分同意	不適用
1	2	3	4	5
很討厭你	討厭你	喜歡你	很喜歡你	
1	2	3	4	
很差的方法	差的方法	好的方法	很好的方法	
1	2	3	4	
一定不會	不會	會	一定會	
1	2	3	4	

2. 這個方法能防止你的同學取笑你。

3. 這個方法會令你的父母

4. 這個方法是個

你會否使用這個方法或類似的方法？

情況十一
一個很疼錫你的親人最近病死了。
你會認為：

- 1. 上天對你真不公平，連疼錫你的親人也要搶去。
- 2. 生老病死，人人皆必經，並非任何人可以阻止。
- 3. 是我不好，所以上天要這樣懲罰我。

十分不同意	不同意	同意	十分同意
1	2	3	4
1	2	3	4
1	2	3	4

以下是三種不同的處理方法：
第一個處理方法是：
怨天尤人，憤世嫉俗。
你認為：

1. 這個方法能減少你心理上所受的打擊。

十分不同意	不同意	同意	十分同意	
1	2	3	4	
十分不同意	不同意	同意	十分同意	不適用
1	2	3	4	5
很討厭你	討厭你	喜歡你	很喜歡你	
1	2	3	4	
很差的方法	差的方法	好的方法	很好的方法	
1	2	3	4	
一定不會	不會	會	一定會	
1	2	3	4	

2. 這個方法能防止你的同學取笑你。

3. 這個方法會令你的親人

4. 這個方法是個

你會否使用這個方法或類似的方法？

第二個處理方法是：
積極生活下去。

你認為：

	十分不同意	不同意	同意	十分同意	
	1	2	3	4	
1. 這個方法能減少你心理上所受的打擊。	十分不同意	不同意	同意	十分同意	不適用
	1	2	3	4	5
2. 這個方法能防止你的同學取笑你。	很討厭你	討厭你	喜歡你	很喜歡你	
	1	2	3	4	
3. 這個方法會令你的親人	很差的方法	差的方法	好的方法	很好的方法	
	1	2	3	4	
4. 這個方法是個	一定不會	不會	會	一定會	
	1	2	3	4	
你會否使用這個方法或類似的方法？					

第三個處理方法是：
獨自傷心，自怨自艾。
你認為：

	十分不同意	不同意	同意	十分同意	
	1	2	3	4	
1. 這個方法能減少你心理上所受的打擊。	十分不同意	不同意	同意	十分同意	不適用
	1	2	3	4	5
2. 這個方法能防止你的同學取笑你。	很討厭你	討厭你	喜歡你	很喜歡你	
	1	2	3	4	
3. 這個方法會令你的親人	很差的方法	差的方法	好的方法	很好的方法	
	1	2	3	4	
4. 這個方法是個	一定不會	不會	會	一定會	
	1	2	3	4	
你會否使用這個方法或類似的方法？					

情況十二

你最近遺失了一件很心愛和對你很有紀念價值的物件。
你會認為：

1. 上天對你真不公平，連你心愛的東西也要搶去。	十分不同意 1	不同意 2	同意 3	十分同意 4
2. 既然已失去了，再傷心也無補於事，倒不如算了，不再去想它。	1	2	3	4
3. 是我不好，不小心收好自己的物件。	1	2	3	4

以下是三種不同的處理方法：
第一個處理方法是：
怨天尤人，大發脾氣。
你認為：

	十分不同意	不同意	同意	十分同意	
1. 這個方法能減少你心理上所受的打擊。	1	2	3	4	
	十分不同意	不同意	同意	十分同意	不適用
2. 這個方法能防止你的同學取笑你。	1	2	3	4	5

3. 這個方法會令你的同學	很討厭你 1	討厭你 2	喜歡你 3	很喜歡你 4
4. 這個方法是個	很差的方法 1	差的方法 2	好的方法 3	很好的方法 4
你會否使用這個方法或類似的方法？	一定不會 1	不會 2	會 3	一定會 4

第二個處理方法是：
以後小心放好自己的物件。
你認為：

1. 這個方法能減少你心理上所受的打擊。	十分不同意 1	不同意 2	同意 3	十分同意 4	
2. 這個方法能防止你的同學取笑你。	十分不同意 1	不同意 2	同意 3	十分同意 4	不適用 5
3. 這個方法會令你的同學	很討厭你 1	討厭你 2	喜歡你 3	很喜歡你 4	
4. 這個方法是個	很差的方法 1	差的方法 2	好的方法 3	很好的方法 4	
你會否使用這個方法或類似的方法？	一定不會 1	不會 2	會 3	一定會 4	

第三個處理方法是：
獨自傷心，自怨自艾。
你認為：

	十分不同意	不同意	同意	十分同意	
	1	2	3	4	
1. 這個方法能減少你心理上所受的打擊。	十分不同意	不同意	同意	十分同意	不適用
	1	2	3	4	5
2. 這個方法能防止你的同學取笑你。	很討厭你	討厭你	喜歡你	很喜歡你	
	1	2	3	4	
3. 這個方法會令你的同學	很差的方法	差的方法	好的方法	很好的方法	
	1	2	3	4	
4. 這個方法是個	一定不會	不會	會	一定會	
	1	2	3	4	
你會否使用這個方法或類似的方法？					

以下是一系列有關青少年的描述。請根據你現在或過往六個月內的情況，評定下列每一項對你描述之準確程度。所有資料只會作研究之用途，絕對保密，請依實況回答。
多謝合作！

	不準確	接近或間中準確	非常準確或經常準確
1. 我覺得孤單寂寞。	0	1	2
2. 我經常哭泣。	0	1	2
3. 我故意傷害自己或企圖自殺。	0	1	2
4. 我害怕自己會產生壞念頭或做壞事。	0	1	2
5. 我覺得自己必須十全十美。	0	1	2
6. 我覺沒有人喜歡我。	0	1	2
7. 我覺得別人全心為難我。	0	1	2
8. 我覺得自己無用或自卑。	0	1	2
9. 我喜歡獨處多過與人一起。	0	1	2
10. 我神經過敏或緊張。	0	1	2
11. 我過度恐懼或焦慮。	0	1	2
12. 我感到頭暈。	0	1	2
13. 我過於感到內疚。	0	1	2
14. 我感到過份疲勞。	0	1	2
15. 病因不明的症狀			
a. 身體痛楚(除頭痛外)	0	1	2
b. 頭痛	0	1	2
c. 作嘔、作悶。	0	1	2
d. 眼睛有毛病，請描述：	0	1	2
e. 出疹或其他皮膚病	0	1	2
f. 胃痛或胃抽筋	0	1	2
g. 嘔吐	0	1	2
16. 我拒絕與人交談。	0	1	2
17. 我很密實，有事不會說出來。	0	1	2
18. 我很自覺或容易感到尷尬。	0	1	2
19. 我很害羞。	0	1	2
20. 我多疑。	0	1	2
21. 我想到自殺。	0	1	2
22. 我的精力不足。	0	1	2
23. 我悶悶不樂或沮喪。	0	1	2
24. 我盡量避免與人深交。	0	1	2
25. 我有很多憂慮。	0	1	2

以下是一些描述。請評定下列每一項對你描述之準確程度。所有資料只會作研究之用途，絕對保密，請依實況回答。多謝合作！

	對我來說 永不正確				對我來說 經常正確
1) 同學遇到困難時你會樂意幫助。	1	2	3	4	5
2) 上課時專心聽書。	1	2	3	4	5
3) 當被人取笑時便會還以顏色。	1	2	3	4	5
4) 和別人發生爭執或打鬥時你經常認為那是別人的錯。	1	2	3	4	5
5) 安慰和開解有心事的同學。	1	2	3	4	5
6) 對於別人意外地開罪你時反應激烈 (例如別人不小心碰到你)。	1	2	3	4	5
7) 聯群結隊對付不喜歡的人。	1	2	3	4	5
8) 指導同學功課上的問題。	1	2	3	4	5
9) 使用武力去控制同學。	1	2	3	4	5
10) 自願參與班會的工作，如幫助佈置課室。	1	2	3	4	5
11) 恐嚇和欺侮別人以求達到自己的目的。	1	2	3	4	5
12) 替請了病假的同學抄筆記。	1	2	3	4	5

全卷完，多謝合作！

Appendix II

Table 6

Correlation coefficients between the three interpretation variables

	Hostile interpretation	Benign interpretation	Self-blame interpretation
Hostile interpretation	1.000	-.534**	.276**
Benign interpretation	-	1.000	-.147**
Self-blame interpretation	-	-	1.000

* $p < .05$

** $p < .01$

Table 7

Correlation coefficients between the variables of evaluation of hostile response

	Tangible reward	Decrease aversive treatment	Inter- personal outcome	Quality of hostile response	Choosing hostile response	Instru- mental and relational reward
Tangible reward	1.000	.263**	.690**	.697**	.728**	.916**
Decrease aversive treatment	-	1.000	.237**	.271**	.251**	.272**
Interpersonal outcome	-	-	1.000	.743**	.713**	.922**
Quality of hostile response	-	-	-	1.000	.759**	.783**
Choosing hostile response	-	-	-	-	1.000	.783**
Instrumental and relational reward	-	-	-	-	-	1.000

* $p < .05$

** $p < .01$

Table 8

Correlation coefficients between variables of evaluation of assertive/positive response

	Tangible reward	Decrease aversive treatment	Inter- personal outcome	Quality of assertive/ positive response	Choosing assertive/ positive response
Tangible reward	1.000	.298**	.431**	.675**	.595**
Decrease aversive treatment	-	1.000	.222**	.324**	.288**
Interpersonal outcome	-	-	1.000	.517**	.444**
Quality of assertive/positive response	-	-	-	1.000	.754**
Choosing assertive/positive response	-	-	-	-	1.000

* $p < .05$

** $p < .01$

Table 9

Correlation coefficients between variables of withdrawal response

	Tangible reward	Decrease aversive treatment	Inter- personal outcome	Quality of withdrawal response	Choosing withdrawal response
Tangible reward	1.000	.162**	.252**	.404**	.443**
Decrease aversive treatment	-	1.000	.266**	.228**	.173**
Interpersonal outcome	-	-	1.000	.617**	.546**
Quality of withdrawal response	-	-	-	1.000	.713**
Choosing withdrawal response	-	-	-	-	1.000

* $p < .05$

** $p < .01$

Appendix III

Table 10

Correlation coefficients between the independent variables and the three dependent variables

	Hostile interpretation	Benign interpretation	Self-blame interpretation	Tangible reward (hostile r.)	Decrease aversive treatment (hr)	Interpersonal outcome (hostile r.)	Quality of hostile response	Choosing hostile response
Hostile interpretation	1.000	-.534**	.276**	.576**	.197**	.395**	.473**	.518**
Benign interpretation	-	1.000	-.147**	-.541**	-.140**	-.540**	-.572**	-.597**
Self-blame interpretation	-	-	1.000	.256**	.073	.210**	.194**	.263**
Tangible reward (hostile r.)	-	-	-	1.000	.263**	.690**	.697**	.728**
Decrease aversive treatment (hr)	-	-	-	-	1.000	.237**	.271**	.251**
Interpersonal outcome (hostile r.)	-	-	-	-	-	1.000	.743**	.713**
Quality of hostile response	-	-	-	-	-	-	1.000	.759**
Choosing hostile response	-	-	-	-	-	-	-	1.000

* $p < .05$

** $p < .01$

Table 10 (cont'd)

Correlation coefficients between variables

	Tangible reward (assertive/ positive r.)	Decrease aversive treatment (ass./pos. r.)	Interpersonal outcome (assertive/ positive r.)	Quality of assertive/ positive response	Choosing assertive/ positive response	Tangible reward (withdrawal)	Decrease aversive treatment (withdrawal)	Interpersonal outcome (withdrawal)
Hostile interpretation	-.304**	-.161**	-.230**	-.420**	-.386**	.185**	-.017	.045
Benign interpretation	.572**	.336**	.372**	.647**	.607**	-.160**	.075	-.105*
Self-blame interpretation	-.118**	-.038	-.096*	-.152**	-.130**	.298**	.076	.227**
Tangible reward (hostile r.)	-.382**	-.227**	-.231**	-.479**	-.462**	.368**	.028	.198**
Decrease aversive treatment (hr)	-.137**	.458**	-.156**	-.190**	-.206**	.082	.711**	.140**
Interpersonal outcome (hostile r.)	-.425**	-.252**	-.272**	-.487**	-.485**	.327**	.049	.291**
Quality of hostile response	-.428**	-.266**	-.262**	-.523**	-.474**	.321**	.042	.228**
Choosing hostile response	-.421**	-.242**	-.312**	-.529**	-.512**	.288**	.014	.240**
Tangible reward (assertive/ positive r.)	1.000	.298**	.431**	.675**	.595**	-.023	.022	-.139**
Decrease aversive treatment (a/s response)	-	1.000	.222**	.324**	.288**	-.019	.635**	-.026
Interpersonal outcome (assertive/ positive r.)	-	-	1.000	.517**	.444**	-.043	.055	.088
Quality of ass./positive response	-	-	-	1.000	.754**	-.077	.020	-.073
Choosing ass./positive response	-	-	-	-	1.000	-.097*	-.025	-.069
Tangible reward (withdrawal response)	-	-	-	-	-	1.000	.162**	.252**
Decrease aversive treatment (withdrawal)	-	-	-	-	-	-	1.000	.266**
Interpersonal outcome (withdrawal)	-	-	-	-	-	-	-	1.000

* $p < .05$

** $p < .01$

Table 10 (cont'd) Correlation coefficients between variables

	Quality of withdrawal response	Choosing withdrawal response	Sex	Internalizing	Reactive aggression	Proactive aggression	Instrumental and relational reward of hostile response
Hostile interpretation	.076	.164**	-.143**	.193**	.346**	.256**	.527**
Benign interpretation	-.153**	-.216**	.140**	-.207**	-.273**	-.322**	-.588**
Self-blame interpretation	.338**	.422**	-.011	.275**	.083*	.109**	.253**
Tangible reward (hostile r.)	.228**	.289**	-.111**	.148**	.239**	.308**	.916**
Decrease aversive treatment (hr)	.147**	.103*	.046	.046	.097*	.091*	.272**
Interpersonal outcome (hostile r.)	.364**	.365**	-.097*	.107*	.164**	.292**	.922**
Quality of hostile response	.296**	.349**	-.086*	.140**	.237**	.317**	.783**
Choosing hostile response	.327**	.397**	-.118**	.114**	.276**	.321**	.783**
Tangible reward (assertive/ positive r.)	-.132**	-.229**	.081	-.169**	-.167**	-.251**	-.440**
Decrease aversive treatment (a/s response)	-.012	-.084*	.094*	-.080	-.086*	-.150**	-.261**
Interpersonal outcome (assertive/ positive r.)	-.011	-.096*	.009	-.090*	-.111**	-.122**	-.274**
Quality of ass./positive response	-.125**	-.166**	.094*	-.178**	-.190**	-.261**	-.525**
Choosing ass./positive response	-.140**	-.116**	.118**	-.164**	-.200**	-.275**	-.515**
Tangible reward (withdrawal response)	.404**	.443**	.018	.116**	-.004	.099*	.377**
Decrease aversive treatment (withdrawal)	.228**	.173**	.161**	.018	-.049	-.053	.042
Interpersonal outcome (withdrawal)	.617**	.546**	.023	.116**	.033	.042	.267**
Quality of withdrawal response	1.000	.713**	.057	.137**	.016	.100*	.323**
Choosing withdrawal response	-	1.000	.087*	.193**	.087*	.135**	.356**
Sex	-	-	1.000	.021	-.191**	-.215**	-.113**
Internalizing	-	-	-	1.000	.242**	.234**	.139**
Reactive agg.	-	-	-	-	1.000	.511**	.218**
Proactive agg	-	-	-	-	-	1.000	.326**
Instrumental and relational reward (h.r.)	-	-	-	-	-	-	1.000

* $p < .05$ ** $p < .01$

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