Parents’ Perceptions of Children’s Accident Risk

by
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fil. kand.

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Umeå 1989
The purpose of the present thesis was, first, to study how parents and other adults perceive or judge children’s accident risk, and, secondly, to relate such judgements to the subjects’ preferences for and satisfaction with different residential conditions.

A theoretical framework is proposed which assumes that judgements of children’s accident risk are based on beliefs about what causes accidents to children. Such beliefs are furthermore assumed to be acquired more often from indirect sources than from own direct experiences. Nevertheless, because of parents’ higher motivation to protect their children, they are assumed to differ from other adults who are not parents with respect to their causal models and, as a consequence, their risk perceptions.

To test some implications of the theoretical framework, three empirical studies were carried out in which parents and nonparents were requested to judge the risk children run of having accidents under different circumstances and to judge the strengths of five causes of such accidents, the parent, the child, the environment, other people, and chance. In two of the studies the subjects were also requested to express their preferences for different residential neighborhoods varying in traffic conditions, or satisfaction with their own residential conditions either as it is or if changed in different ways.

Support for the implications of the theoretical framework was obtained in that causal explanations of accidents were shown to play a decisive role for judgements of accident risk. However, very slight differences were found between parents’ and nonparents’ causal models and risk perceptions. The results furthermore indicated that accident risk was of importance for parents’ satisfaction with their residential conditions if changes with perceived accident consequences were implemented. In this respect parents differed from nonparents. For the latter other things than children’s accident risk tended to be more important.

Key words: Risk Perceptions, Childhood Accidents, Residential Satisfaction.
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Umeå 1988
Abstract


The purpose of the present thesis was, first, to study how parents and other adults perceive or judge children's accident risk, and, secondly, to relate such judgements to the subjects' preferences for and satisfaction with different residential conditions.

A theoretical framework is proposed which assumes that judgements of children's accident risk are based on beliefs about what causes accidents to children. Such beliefs are furthermore assumed to be acquired more often from indirect sources than from own direct experiences. Nevertheless, because of parents' higher motivation to protect their children, they are assumed to differ from other adults who are not parents with respect to their causal models and, as a consequence, their risk perceptions.

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Support for the implications of the theoretical framework was obtained in that causal explanations of accidents were shown to play a decisive role for judgements of accident risk. However, very slight differences were found between parents' and nonparents' causal models and risk perceptions. The results furthermore indicated that accident risk was of importance for parents' satisfaction with their residential conditions if changes with perceived accident consequences were implemented. In this respect parents differed from nonparents. For the latter other things than children's accident risk tended to be more important.

Key words: Risk Perceptions, Childhood Accidents, Residential Satisfaction.
To Tommy
and
Johan, Kristina, and Niklas
This dissertation consists of the present summary and the following studies referred to by their Roman numerals:


II. Gärling, A., & Gärling, T. Parents’ residential satisfaction and perceptions of children’s accident risk. *APPENDIX I.*

III. Gärling, A. Parents’ heuristics for judging children’s accident risk. *APPENDIX II.*

The dissertation work has been carried out in the Department of Psychology at University of Umeå which also provided financial support for printing this summary. Financial support for the empirical studies was obtained from several sources. A planning grant was received from the Swedish Council for Research in the Humanities and Social Sciences. This grant also covered the cost of running Study I. The Swedish Council for Building Research provided support to Dr. Tommy Gärling for Study II, and the Bank of Sweden Tercentenary Fund for Study III. In reporting Study I I share responsibility with Tommy Gärling and Jaan Valsiner, and in reporting Study II with Tommy Gärling. For Study I I share the main responsibility equal with Tommy Gärling, for Study II I alone have the main responsibility.

Any work, although in the end carried out by a single individual, is never independent of the influence and help of others. This was also the case with the present thesis. Therefore I would like to express my sincere gratitude to all, who in one way or another, made this work possible, and especially to the following persons:

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*APPENDIX I*

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Introduction

Through history the most serious threat to children's health and welfare has been infectious diseases such as influenza, tuberculosis, polio, measles, diphtheria, and pneumonia (Roberts & Brooks, 1987). The advent of efficient vaccines and antibiotics resulted in a dramatic change. Accidental injuries is now the leading single cause of death (Rivara & Mueller, 1987; Baker, O'Neill, & Karpf, 1984). In Sweden about 250 children between 1 and 14 years die every year in accidents, predominantly in motor vehicle accidents but not much less frequently in home accidents (Statens offentliga utredningar, 1979). An additional approximately 255,000 children require medical attention because of accidental injuries. It is also estimated that at least as many accidents result in minor injuries.

Accident has been defined as a chance event resulting in personal injury (T. Gärling, 1985). This definition is somewhat unfortunate because it implies that accidents are not caused by anything. More recently the term unintentional injury is becoming more frequently used to avoid this implication (Roberts & Brooks, 1987). However, emphasizing injury may lead to an equally unfortunate focus on the cause(s) of the injury. In the present dissertation in which a broader approach to the problem of accident prevention is endorsed (T. Gärling & Valsiner, 1985), the term accident-prone event is preferred. Such events range from events which could have caused injury through those causing minor injury to fatal ones. The cause(s) of the injury-causing, or potentially injury-causing, event rather than of the injury is thereby highlighted.

From the broader approach rather than from an approach focusing on injuries, it is essential to consider the role of the parents in the prevention of childhood accidents and to try to understand and to eliminate the problems they face when safeguarding their children's safety. There are several ways in which parents protect their children (T. Gärling & A. Gärling, 1988). By supervising the children, the environment, and significant other people, a parent is ready to recognize and identify accident-prone events and to act to prevent such events to occur. Selecting and structuring the children's environment is a means by which children's movements and exposition to accident-prone events are constrained. Finally, teaching the children to act safely themselves, through the use of disciplinary techniques (Grusec & Kuczynski, 1980) and model and social reciprocity learning (Hall & Cairns, 1984), is a third means which is more oriented towards the future than the other two.

Only analytically is it possible to distinguish different protective actions. In parents' everyday intercourse with their children these actions are intermingled in complex ways with each other and with other actions. Although nothing appears to be known by way of empirical studies, a number of assumptions were offered by T. Gärling and A. Gärling (1988) concerning the interrelationships between the different protective actions. First, to some extent the different actions are
substitutable. A parent may, for instance, select or structure the environment to reduce the need for supervising the child. If teaching has an effect, the need of both supervising the child and structuring the environment is reduced. Secondly, the different protective actions are instrumental for each other. An example of this would be that structuring the environment leads to protection only because it facilitates supervision. Furthermore, environments can be selected or structured to increase learning opportunities.

Parents' protection of children from accidental injuries is the general topic of the present dissertation. Rather than directly focussing on one (or several) of the protective actions parents are assumed to undertake and how it changes with factors such as type of environment and the child's age (T. Gärling & A. Gärling, 1988), this dissertation takes an approach logically preceding the study of parents' protective actions. Its primary focus is on a common reason why parents undertake any protective action, namely their perceptions of the possibility that accidents occur, that is, accident risk. The general aim is to investigate how parents (and other adults) perceive or judge the risk that a child has an accident. In the following, theoretical approaches to parent-child interaction are first briefly reviewed. A theoretical framework is then presented with the purpose of accounting for parents' perceptions of children's accident risk. Finally, the empirical studies which aim to test some implications of the theoretical framework are summarized.

Theoretical Approaches to Parent-Child Interaction

Biological-Evolutionary Perspectives

From a biological-evolutionary perspective it is understandable that parents care for their offspring when it increases the likelihood of its survival (Goude, 1986; Sluckin & Herbert, 1986). In this vein it has been assumed that in human beings survival must have been highly dependent on close contact with the mother in order for her to be able to protect the infant from predators (Bowlby, 1958, 1969). Even though other kinds of dangers threaten children today, Ainsworth (1983), among others, argues that the infant's repertoire of behaviors has evolved to maintain proximity to the mother and other caregiving adults by attracting their attention.

A newborn human infant is, in contrast to the offspring of many other species, physically, cognitively, and socially immature. The infant is therefore for a long time

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1 Perception is used almost synonymous to judgement, a term which will appear below. However, even though perception usually has a much more narrow meaning, it is an attractive term because, in contrast to judgment (or assessment), it does not necessarily imply deliberation.

2 Mother refers in this section to the primary caregiver whether or not the biological mother.
dependent on the mother for satisfying its basic needs such as nutrition, comfort, protection, and socialization (Higley & Suomi, 1986). Initializing and maintaining interaction with the mother is essential for survival. The assumption is made that the infant already from birth, despite its immaturity, is able to express its needs in ways so that the mother responds to satisfy them (Hinde, 1982). The cry, and later the smile and the locomoting ability, are examples of such behaviors (Bell & Ainsworth, 1972; Frodi, Lamb, Leavitt, & Donovan, 1978). Picking up and holding or feeding the infant are examples of the mother’s need-satisfying behaviors triggered by the infant (Bernal, 1972).

Bowlby (1969) lists four hypothetical systems of infant behavior which has evolved. The first one is promotion of proximity to the mother to obtain care and protection. The second is escape to avoid dangers. The third and fourth are interaction with the social and physical environments, respectively, in order to learn. If any of these systems become activated, other ongoing behavior may be interrupted. An example would be an infant, interacting with the physical environment, who starts to cry out of fear to increase proximity to the mother.

The basic goal of protection is according to Bowlby (1969) achieved by mutually complementary mother-infant behaviors. The infant undertakes proximity-promoting behaviors (e.g., crying, smiling, and locomoting), presumably on the basis of some crude perception of discrepancy between desired and achieved safety. The mother directly responds to these within her repertoire of protective behaviors (e.g. by picking up and holding the infant).

The other side of the coin, mother-to-infant bonding, is discussed by, for instance, Klaus & Kennel (1976). It has been assumed to be dependent on close skin-to-skin contact during some critical period of a few hours after birth. If this bonding does not come about, an abnormal mother-infant relationship may result. The mother may become unresponsive to, and may even reject, the infant (Leifer, Leiderman, Barnett, & Williams, 1972). A lowered degree of protection of the infant may thus decrease its likelihood of survival. However, empirical research does not seem to have given much support to these hypotheses (Lamb & Hwang, 1982). The relationship between early skin-to-skin contact and the mother’s later degree of bonding to the infant has either been weak (e.g. Sigel, Bauman, Schaefer, Saunders, & Ingram, 1980; Grossman, Thane, & Grossman, 1981), or totally absent (e.g. Svedja. Campos. & Emde, 1980).

In summary, the biological-evolutionary perspectives can be viewed as either phylogenetically evolved adaptive interactions between mother and infant (Bowlby, 1969), or as a result of early socialization, even though regulated by hormones (Murray, 1979). Whatever stand one takes on that issue, many seems to believe that the mother-infant interaction is critical for the infant’s survival (Murray, 1979), and perhaps also of importance for later adjustments. The case may still be that other theoretical approaches are more viable in accounting for these later adjustments.
Psychological Perspectives

The biological-evolutionary perspective assumes that the bonding between mother and infant characterizes their interaction. Waters and Deanne (1982) argue, however, that this is insufficient as a description of such (complex) interaction phenomena. They emphasize that the interaction per se needs to be studied in depth. Rosenthal (1972) goes even further in questioning the existence of bonding. The argument is that it only reflects properties of any close social interaction. Such properties were listed by Hinde (1982). However, to be a complete description, content of the interaction and each participant’s contributions to it also need to be included. In the following some psychological perspectives are examined which appear to be more responsive to these requirements.

An approach to describing parent-child interaction is discussed by Maccoby and Martin (1983). In this approach members of families are assumed to be facing problems which they actively try to solve together. Conflicts arise because parents and children have different goals, and to what degree balanced conflict solutions are achieved is determined by external factors, characteristics of the child (e.g. temperament) and parent (e.g. parenting style), and previous experiences of conflict solutions within the family. In an attempt to apply this approach to parents’ protection of their children, T. Gärling and A. Gärling (1988) assumes another factor, important for efficient protection, to be how persistent parents are in enforcing their protection goals. As they argue, this may be particularly difficult because accidents are uncertain events, the nature of which is difficult to understand for both the child and parent.

Maccoby & Martin’s (1983) approach represents a global analysis of parent-child interaction which tries to identify relatively enduring interaction patterns such as number of and typical conflicts, degree of balance in conflict solutions, and so forth. A similar approach which emphasizes microanalysis is the control theory of Bell (1971, 1977). He assumes that interacting parents and children have hierarchically organized behavior repertoires which are mutually dependent. Each participant is assumed to control the other participant’s behavior by first imposing a lower and a higher limit on his or her behavior, then undertaking compensatory behaviors to influence frequency, intensity, and appropriateness of these behaviors. Examples of such compensatory actions on the part of the parent are disciplinary techniques (Grusec & Kuczynski, 1980) but also means of stimulating the child if his or her behavior falls below the lower limit. A criticism of this theory is that it does not account for interactions which are in equilibrium. On the other hand, it has been argued (Bell & Chapman, 1986) that conflicts are the most important aspects of the interaction, for instance because they represent situations where most of the socialization takes place. Applying the theory to protection, questions may be asked about how parents set the limits on children’s behavior in terms of accident risk. A shortcoming in this respect is that the theory tends to neglect the environment (Valsiner, 1985), focusing exclusively on the children’s behaviors.
Focusing even more closely on factors that regulate the interaction between parent and child, it has been common to emphasize the contribution by parents, for instance their knowledge and beliefs (Sigel, 1985). There are many theories which assume that knowledge and beliefs regulate action (e.g. so called expectancy-value theories, see Feather, 1982). One of the more influential is the theory of reasoned (or planned) action proposed by Fishbein and Ajzen (1975; see also Ajzen, 1985). In this theory it is assumed that an action is based on beliefs about how positive and likely its consequences are and how motivated one is to comply with what important others are believed to think is desirable.

The theory of reasoned action seems to be well suited to account for parents’ choice between protective actions. However, it does not say much about the content of parents’ beliefs. Dix and Grucsec (1985) assumes that parental disciplinary actions are based on attributions of causes of the child’s behavior. According to these authors, as long as the child behaves in a way that parents perceive is in no conflict with their socialization goals, they do not act. If, on the other hand, parents perceive such a conflict, whether they will act or not depends on what they believe caused the child’s behavior. Specifically, disciplinary measures are taken when the child is attributed as a cause but not if the environment (or situation) is.

From the review in this subsection a common perspective emerges in which parents’ protective actions are viewed as related to their acquired knowledge and beliefs about children, the environment, and accident-prone events. This cognitive rather than biological-evolutionary perspective is the point of departure for the theoretical framework which is developed in the next section. The biological-evolutionary perspective may account for parents’ motivations to protect their children but is considered insufficient to account for complex parental protective actions which are likely to be based on acquired knowledge and beliefs.

Summary of Empirical Studies

Theoretical Framework

Parents’ undertaking of actions with the purpose of protecting children from accidental injuries is in this dissertation assumed to be based on perceptions of accident risk. No previous research on parents’ perceptions of accident risk has been conducted, neither has its role in parent-child interaction been specified or studied (Valsiner, 1985). A theoretical framework was therefore developed based in part on the kind of belief-regulation theory of action proposed by Dix and Grucsec (1985), in part on the basis of previous research on risk perceptions.

Research on risk perceptions in various contexts (Fischhoff, Svenson, & Slovic, 1987; Slovic, Fischhoff, & Lichtenstein, 1982) has indicated that both experts and lay people may be inaccurate. One cause of inaccuracies observed in studies of perceptions of likelihood of death causes is biases in the mass media coverage of
events. For instance, accidents as a cause of death in general receives more coverage than death due to diseases and are also perceived as more likely than they are, diseases as less likely (Slovic et al., 1982). Furthermore, according to Lichtenstein, Slovic, Fischhoff, and Phillips (1978), the likelihood of threatening events is overestimated and the likelihood of mundane events underestimated. Somewhat differently, Fischhoff, Slovic, Lichtenstein, and Coombs (1978) assume the existence of a socially acceptable risk level below which risk-reducing actions may not be perceived as necessary. Other possible circumstances leading to inaccurate risk perceptions are consequences which are personal, collective, or long-term (The Royal Society Study Group, 1983).

In addition to contributing empirical evidence on inaccuracies or biases, research on risk perceptions has, mainly through the work of Kahneman and Tversky (1973), demonstrated that people use simplifying heuristics in judging risk or likelihood. One example is the availability heuristic (Tversky & Kahneman, 1973) according to which how easy a previously encountered event is to recall determines how likely it is perceived. Thus, to the extent memory for base rates is distorted, due to saliency and recency, the use of this heuristic can explain certain biases.

Ajzen (1977; see also Ajzen & Fishbein, 1983) proposes another heuristic according to which attribution of causes to an event determines how likely it is perceived. Empirical support was provided by Ajzen (1977) and Tversky and Kahneman (1980) who found that only if events were perceived as causes, their presence had an effect on judgments of the likelihood of the event causally related to them.

Attribution of causes is one of the most researched topics in social psychology (e.g. Kelley & Michela, 1980). Previous theoretical accounts (e.g., Heider, 1958; Jones & Davies, 1965; Kelley, 1972a, 1979) tended to emphasize that direct systematic observations of sequences of events are essential for people’s ability to infer what causes them. More recently, many researchers (Einhorn & Hogarth, 1986; Kelley, 1972b, 1983; Nisbett & Ross, 1980) have instead recognized the role of causal schemata or models acquired primarily from indirect sources (Wells, 1981). This view seems particularly relevant when one is concerned with events such as accidents of which most people have relatively limited personal experience.

Kahneman and Tversky (1982) admit that the availability heuristic has limited usefulness because few events repeat themselves. They therefore suggest still another heuristic, the simulation heuristic. According to this heuristic, rather than being recalled, events are mentally constructed or simulated.

The present theoretical framework attempts to pull together these somewhat separate ideas. As Figure 1 illustrates, the outcome of an unfolding event may be anticipated by a parent so that he or she can act in advance. This is of course an essential element of protective actions and probably of many other parental actions as well (Holden, 1983). In order to perceive an accident risk motivating any action (perhaps if exceeding some acceptable level of risk), a parent mentally simulates the
outcome of the event. The mental simulation is possible because the causal structure of the event can be inferred from a causal schema pertaining to the class to which the event belong. Thus, a parent perceives whether causes of an accident to the child are present, and if they are, mentally simulates an accident outcome. On the basis of this mental simulation of such an outcome and the resulting perception of risk, proactive protective actions are undertaken. Furthermore, exactly as Dix and Grusec (1985) assumed to occur in socialization, what causes are attributed to the mentally simulated accident outcome may also be a basis for deciding between different protective actions.

Anticipation on the part of the parents may be even more powerful. For instance information about the environment where accident-prone events may occur, may be assumed to be sufficient to trigger mental simulation and risk perceptions. Prototypical examples are many everyday situations (e.g., leaving or not leaving the child alone at home, moving to a new neighborhood) where a parent is faced with making decisions with future consequences for children's accident risk.

Effective protective actions on the part of parents will change the course of an event, preventing it to turn into an accident. In this way parents will acquire very little personal experience with accidents to their children. Even though such personal experiences should nevertheless be of some importance, they may definitely be less important than information gained from indirect sources. Such "indirect" sources are the mass media, friends and neighbors and their children, educational and training programs, etc. It is a common observation that information in the mass media and formal educational and training programs tend to focus on what causes childhood accidents, thus conveying "ready-made" causal schemata of such events as well as information about how they should be prevented (i.e., eliminating sufficient causes). However, general knowledge, for instance of children, may also be important. Svensson-Gärling, T. Gärling, and Valsiner (1985) developed an
inventory to measure parents' and nonparents' knowledge of children's skill in the physical-motoric, perceptual-cognitive, language, social-emotional, and moral domains. So far no attempt has been made to find out about the relationship between degree of such knowledge and risk perceptions (or protective actions).

In order to provide support for the basic assumption made above about the role of causal attributions in parents' risk perceptions, the present Studies I, II, and III investigated whether parents' and nonparents' perceptions of children's accident risk were related to their attributions of causes to children's accidents. The results of these studies are summarized in next subsection.

Selection and structuring environments is one class of protective actions parents undertake (T. Gärling & A. Gärling, 1988). In Studies I and II a limited attempt was made to investigate whether parents' and nonparents' perceptions of children's accident risk have consequences for their preferences for different residential neighborhoods respectively for their satisfaction with present neighborhood if changed in different ways. The results in these respects are summarized in the subsection following the next one.

Risk Perceptions (Studies I, II, and III)

It was assumed above that in order to anticipate the outcome of an accident-prone event, a causal schema is activated so that a parent can simulate the outcome and base his or her perception of risk on that. In Studies I and II information about causal schemata pertaining to children's accidents were obtained by means of ratings of the strengths of a number of causes of such accidents. A statistical relationship was expected between judgments of children's accident risk and the ratings of the causes.

Because children's accidents are not very frequent, causal schemata are probably primarily acquired from secondary sources. One important such source is certainly the mass media. For that reason both parents and nonparents may be exposed similarly to relevant information. However, because parents should be more motivated to protect (their) children, they may nevertheless gain more information. Apart from that and to the extent direct previous experiences of accidents and near-accidents play any role, parents should have had more such direct experiences. Parents' causal schemata may either be more deterministic because they have more knowledge about the causation of children's accidents, or the content of the causal schemata (the strengths attributed to different causes) may differ. As a consequence, differences in risk perceptions were in Studies I and II expected between parents and nonparents.

In Study I the subjects were 75 parents, 30 men and 45 women, and 30 nonparents, 12 men and 18 women, recruited from a community college. Of the parents 27 had one child (M = 7.6 years), 30 two children (M = 13.4 and 10.2 years), and 18 three children (M = 16.5, 13.3, and 9.1 years). The subjects in Study II were 96 parents and 48 nonparents, equally many of each sex, who were randomly selected from a general population. Equally many parents, furthermore, had at least one child
in each of the age groups 2-4, 5-6, 7-9, and 10-12 years, respectively.

In Study I one task subjects were asked to do was to rate on graphical scales the risk a child in different age ranges (2-4, 5-6, 7-9, and 10-12 years) would run of having a traffic accident if living in any of six residential neighborhoods differing in traffic conditions. The subjects themselves lived in one of the neighborhoods (which one varied), and the remaining were all familiar. The intention was to simulate choices to move to another residential neighborhood or not, and, if choosing to move, choices of which one. The subjects in Study II also lived in the six neighborhoods, in this case equally many in each. They similarly judged the risk of an accident (type not specified) to a child in the different age ranges living in their own home and neighborhood, either as it was or after any of a number of changes had been implemented. Thus in this case the subjects judged their own neighborhood (and home) only, and the purpose was to simulate reactions to changes which are implemented (e.g., a lower speed limit, more bus routes). In addition, ratings were in both studies obtained on graphical scales of the strengths attributed to a number of causes of an accident occurring to a child in each age range under the specified conditions. The causes were the parents, the child, the environment, other people (e.g., drivers), and chance or bad luck (even though not strictly a cause).

Because parents rated chance as a less strong cause than other causes, the results suggested that parents' causal schemata pertaining to children's accidents are largely deterministic (even though T. Gärling, A. Gärling, & Valsiner, 1987, have later found that this may differ somewhat for different accident types). In neither study did nonparents furthermore in this respect differ from parents. As far as content is concerned, the causal strength of the parents was rated to decrease with the child's age at the same time as the causal strength of the child himself or herself was rated to increase. Parents tended to differ from nonparents, although the differences were small and confined to Study I. Parents rated the child as a weaker cause which increased less with age, nonparents rated parents as a weaker cause which decreased more with age. The causal strengths attributed to the environment and other people first increased, then decreased with age. The only difference due to residential neighborhood and change, respectively, was that the causal strength of the environment varied.

The results of both Studies I and II showed that the risk judgments correlated reliably with a linear combination of the ratings of the causes, thus lending support to the hypothesis that risk judgments are based on causal schemata. However, it was also clear that systematic variation in the risk judgments due to environment or change and age range could not be completely accounted for. No differences were furthermore observed between parents and nonparents which, on the other hand, was consistent with the finding that they did not differ (or differed little) in their causal attributions.

Because the support for the hypothesis that parents use the causality heuristic was not conclusive, an alternative possibility was subjected to test in Study III. On the
basis of the work of Kahneman & Tversky (1973) on the availability heuristic, it was hypothesized that the number of personally experienced accidents or near-accidents parents are able to recall determines how likely they perceive an accident. This hypothesis was investigated in Experiments 1 and 2 in Study III. Because parents may have more personal experiences of accident-prone events involving their children, they were furthermore expected to differ from nonparents both with respect to the number of recalled such events and with respect to risk perceptions.

Seventy two and 48 women participated in Experiments 1 and 2, respectively. One third were mothers who were randomly sampled from a general population. Equally many of them had at least one child in each of the age groups 2-4, 5-6, 7-9, and 10-12 years, respectively. The remaining subjects were students who were not mothers. An equal number was recruited from the school of education and the dentist school, respectively. They were supposed to differ with respect to knowledge of children but not with respect to their personal experiences of children’s accidents. All subjects judged on graphical scales the risk that a child in any of the age ranges 2-4, 5-6, 7-9, and 10-12 years would have an accident where the subjects lived. Immediately after giving such a judgement the subjects were asked to list accidents or near-accidents they were able to recall. In Experiment 2 different kinds of accidents were specified, whereas in Experiment 1 no such specification was given.

The results of Experiment 1 yielded a positive relation between judged risk and the number of recalled accidents. However, the mothers did not differ in the expected direction from the nonmothers, and the recalled accidents were not often personally experienced but referred to generic classes.

Because the accident type was specified in Experiment 2 (as one of eight different types most frequently mentioned by the subjects in Experiment 1), it was expected that this would help mothers to recall personally experienced accidents. However, the results were not much different: A weak significant correlation was observed between judged risk and the number of recalled accidents, the recalled accidents were not personally experienced, and there was no difference in the expected direction between mothers and nonmothers.

Experiment 3 aimed at distinguishing between the causality and the availability heuristics. Subjects were presented with 24 descriptions of accidents to children in different ages (3, 5, 8, and 11 years) and of different sex. In the experimental condition subjects were first requested to judge the likelihood that such an event would result in an accident, then to state their reasons for judging it that likely. The critical test was whether subjects would mention the presence of causes of accidents as reasons, or whether they would refer to similar, personally experienced events.

Ninety six subjects were recruited from the same populations as in the preceding experiments. Half of the subjects took part in the experimental conditions, the other half of the subjects in a control condition in which they were asked to indicate for each description why they believed the accident occured.

The results were quite clearcut in supporting the causality heuristic. The reasons
given by the subjects, whether mothers or not, referred to causal explanations rather than to personally experienced events in 95% of the cases. Furthermore, the causes mentioned were the same as the subjects in the control condition mentioned as explanations, even though the frequencies differed. It may also be noted that the mentioned causes were exactly the same as those which were preselected in Studies I and II.

Residential Preferences and Satisfaction (Studies I and II)

Miller, Tsembris, Malia, and Grega (1980) tried to account for residential preferences and satisfaction by means of the attitude theory of Fishbein and Ajzen (1975). The assumption was thus made that the overall preference or satisfaction is related to how positively a number of beliefs about the residential conditions are evaluated. However, rather than assuming summation, Miller et al. found it more likely that a few very salient beliefs dominate the overall evaluation. A belief which is salient to parents, but not necessarily to nonparents, could be perceptions of children's accident risk. In Studies I and II it was therefore hypothesized that parents', in contrast to nonparents', preferences for different residential neighborhoods or satisfaction with their present residential conditions if changed in different ways should be affected by their perceptions of children's accident risk.

In addition to the other tasks, subjects were in Study I requested to evaluate the residential neighborhoods on three sets of semantic-differential technique type of bipolar scales which have been developed in previous research (e.g., T. Gärling, 1976a, 1976b, 1980). One set measured attractiveness (e.g. attractive-unattractive), another set social status (e.g. exclusive-inexclusive), and a third set safety (e.g. dangerous-not dangerous). Even though both perceptions of traffic accident risk and the strength attributed to the environment as a cause of such accidents varied across the neighborhoods, the evaluation of them did not seem to be affected by the risk perceptions. There were furthermore no differences between parents and nonparents. Several possible reasons were discussed. One was that the ratings were based on more cognitive, "detached" evaluations. The situation might have been different had the parents been faced with the real choice of moving. Many parents had older children. Traffic accident risk should still be salient but it is also possible that other threats, for instance, alcohol and drug abuse, were perceived as more salient. Because much has been done to decrease traffic accidents in residential neighborhoods, traffic accident risk may furthermore not be salient unless it increases above some threshold.

In Study II the parents and nonparents participating as subjects were led to believe that a number of changes would (if subjects were favourable) be implemented in their own residential neighborhoods. Some changes increased the risk of children's accidents (both traffic and other types), possibly exceeding a threshold where the risk becomes salient, at the same time as having other consequences which were positive. Other sets of changes had negative consequences as well as decreasing the accident
risk. As reported above, parents and nonparents similarly perceived these changes to increase or to decrease a child’s accident risk in the different age ranges. They also attributed the environment as the cause of the increase or decrease.

The parents had at least one child in any of the age ranges, and, as already noted, they were requested to evaluate what they perceived as realistic changes in their own neighborhoods. Furthermore, scales were used which measured attractiveness and perceived safety as in Study I, but also intentions to protest against the changes and intentions to move. As compared to Study I, it was much more likely then that the subjects were involved. The results were also different. In particular on the attractiveness and safety scales, parents but not nonparents reacted negatively towards risk-increasing changes. They were somewhat less positive towards risk-decreasing changes, suggesting that the prevailing conditions may be perceived as satisfactory. Because parents and nonparents did not differ in risk perceptions, saliency of accident risk should be responsible for the differences in evaluative responses. Nonparents were in particular less affected by risk-decreasing changes. Their opinion may be that parents manage accident risk under the prevailing conditions, in which case they see no need for changes which decrease risk (and which also have negative consequences). Parents may be of the same opinion but may still perceive the changes as relieving them of some of the burden of managing their children’s accident risk.

Conclusions

The primary aim of the present empirical studies was to investigate how parents judge children’s accident risk. A theoretical framework was developed which assumed that different heuristics are used. Taking the causality heuristic (Ajzen, 1977) as the point of departure, causal schemata, probably acquired mainly from indirect sources rather than from direct previous experiences (Einhorn & Hogart, 1986; Nisbett & Ross, 1980; Kelley, 1983; Wells, 1981), were assumed to make it possible for parents to use the simulation heuristic (Kahneman & Tversky, 1982), that is, to mentally simulate the outcome of accident-prone events and to base judgements of risk on the simulated outcome. If direct previous experiences with accident-prone events involving children is less important than more general knowledge acquired from indirect sources such as the mass media, parents may not differ from nonparents. However, because parents should be more interested in learning how to protect children, their causal schemata and, as a consequence, risk perceptions may nevertheless differ from nonparents’. Nonparents may know less of causes of children’s accidents (i.e., their causal schemata may be less deterministic), or their beliefs about the strength of different causes may differ (i.e., the content of their causal schemata may differ).

The results of Studies I and II supported the assumption that causal schemata play
a role in both parents' and nonparents' perceptions of children's accident risk. However, no large differences were found between parents and nonparents, neither in their causal attributions nor in their risk perceptions. In Study III more conclusive evidence for the role of causal schemata was obtained. The results of this study also showed, for mothers and nonmothers alike, that personally experienced accidents or near-accidents were of little importance for how likely accidents were perceived.

One reason why parents and nonparents did not differ may be that personal experiences with accident-prone events occurring to own children played little role. More recent observations (T. Gärling, A. Gärling, Mauritzson-Sandberg, & Björnstig, 1988) suggest, however, that personally experienced accidents (usually near-accidents or minor injuries) play some role for mothers' perceptions of the risk their own children run of having an accident. Nevertheless, even if one personally encounters near-accidents or minor injuries, they may not be easily recallable. The knowledge which was tapped in the present studies was more general and rather unspecific (i.e., the relative strengths of causes of children's accidents such as the child, the parents, the environment, other people, and chance). On that general and unspecific level, it can be stated that, at least well educated, nonparents do not differ from parents. Further studies are however needed of how parents and nonparents differ and what role is played by personal experiences. Of particular interest would be to monitor the process of updating of knowledge in response to things which occur in parents' daily intercourse with their children.

Even though the present research has demonstrated the role of causal schemata in parents' perceptions of children's accident risk, it did not provide much information about the process of risk perception. As stated above, it was assumed that subjects mentally simulated the outcome of accident-prone events. Data relevant to this particular assumption need to be collected in future studies using process-tracing techniques.

A secondary aim was to investigate whether parents' perceptions of children's accident risk were as salient to them as to have consequences for their residential preferences and satisfaction. The results in Study II supported this assertion. Furthermore, in this respect parents differed from nonparents. Parents were in particular more negative towards proposed changes in their residential neighborhoods which were perceived to increase accident risk. Thus, some support for the assumption of a connection between risk perceptions and protective actions (T. Gärling & A. Gärling, 1988) was provided.

One obvious objection which may be raised is that such a "hot" topic as children's accidents in this dissertation has been treated as a problem in "cold" cognition. What role, if any, do parents' emotional reactions, such as fear, play? The present theoretical framework does not preclude emotional reactions; in fact, it should be feasible to interpret risk perceptions as fear responses. For instance, Weiner (1985) has, in a similar vein as the present theoretical framework, contributed an analysis in which causal attributions are the basis of emotional reactions. The virtue of the
present theoretical framework could then be that it encompasses both situations where fear responses are very likely to arise (e.g. direct perception of accident-prone events), as well as where they are less likely to arise (e.g. facing decision alternatives with future accident consequences).

Even though the theoretical framework may eventually be find to be as general as to encompass fear-evoking situations, it should not be denied that the present empirical studies have not focused on such situations. There are obvious practical, as well as ethical, reasons for this. Nevertheless, to advance knowledge in this domain, field study methods, similar to those used in socialization research (e.g. Martin & Maccoby, 1983), may need to be employed. The present research provides a starting point for such studies.

Bell (1971, 1977) argues that children may influence parents equally much, or even more, as they influence the children. Wright (1967), among others, has shown that children to the same extent as parents may initialize an interaction. It may even be the child who determines what disciplinary techniques the parent uses. How such influences from the child affect parents’ perceptions of his or her accident risk and their choice of and persistence in enforcing protective measures is not known but would certainly be of interest to start to disentangle. In such research the conflict-resolution framework by Martin and Maccoby (1983), or the control theory approach by Bell (1971, 1977), may be useful.

References


