

Smoking Behaviour in Adolescents- GAP Analysis in School Counselling System

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Abstract

Despite the presence of extensive research on adolescent high-risk smoking behaviour there is a gap in availability of related interventions at the school level. The aim of this study is to understand the gap in awareness and interventional practices by school counsellors for factors leading to high risk behaviour in adolescents. For the purpose 7 factors, namely, Neurobiology of adolescent brain, Identity styles of adolescents, Stress-Diathesis interaction, Working memory capacity, Internet use, Family relationships and Peer influence that are believed to be contributing to high risk behaviour in adolescents were identified through review of related literature. Later awareness and interventional practices of these 7 factors were assessed through a survey for 100 school counsellors in Delhi NCR, India. Based on data results a Grid for Awareness-Practice was constructed. Basis the grid results, targeted mediations can be designed to increase the awareness of school counsellors about these factors and to ensure their use by them in interactions and interventions with the adolescents.

Keywords: Adolescents; grid for awareness practice; high risk smoking behaviour; school counsellors

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INTRODUCTION

High-risk behaviours can be described as behaviours that present a high risk of physical, economic, social or emotional issues not just to an individual but to the society at large. The outcome of these behaviours is not only limited to an individual or a group of individuals involved in these behaviours but have huge implications on overall functioning of the society. High risk behaviours can manifest in the form of violence, self-injury, tobacco use, substance abuse, precarious sexual behaviours, and health related disorders. These behaviours bring short term pleasures to the individual but are highly detrimental in the long run. High risk behaviour thus is an essential factor to explore in greater depth. Though High risk behaviour can impact individuals irrespective of their age, adolescents across the globe are more prone to be impacted by these behaviours. Adolescence being a phase of sudden emotional, physical, mental and social changes puts an individual at a greater risk of being impacted by such behaviours. In adolescents it can be seen as a disorder in which the motivation is misdirected and self-control is impaired (1). It has severe implications on mortality and morbidity during adolescence (2).

Though physically adolescents start appearing like adults, mentally and emotionally they still are in a developing state. From Neuroscience perspective the Pre-Frontal Cortex in their brain is still developing and continues to do so till early 20s. This still under-developed cortical region makes the executive decision making skills and logical thinking in adolescents not fully available to them. This results in emotional limbic system in the brain to override the rational prefrontal cortex giving rise to impulsive and pleasure seeking behaviour (3). Changing bodies, rising social expectations and need for identity formation coupled with under-developed mental faculties put adolescents at high risk of developing stress related disorders. To cope with this stress, adolescents instinctively get attracted to behaviours that are risky but provide thrill, pleasure and short term relief from stress, thinking the least about their consequences (4).

Of various risky behaviours that adolescents get into, violence, precarious sexual behaviour, suicide, tobacco use, alcohol and drug use and eating disorders are the ones of major concern (5). It has been established that various high risk behaviours bear a strong inter-relationship with one another where indulgence in one behaviour leads to occurrence of another (6). Therefore, it can be seen that various high risk behaviours do not occur in isolation and mostly they co-occur making it highly important to explore more about the factors that influence high risk behaviour in adolescents.

Need of the study

In recent times the smoking behaviour among adolescence has grown exponentially. In spite of the efforts and intervention programmes, there exists a gap between what is desired and what exists. Many adolescents today are seen retorting to smoking behaviour for pleasure and to fit in. This gap gives rise to the need for current study. Through this study the researchers aim to identify the understanding and application by school counsellors of various factors that are known to influence smoking behaviour among adolescents. This study will lead to development of focused intervention models based on these factors for prevention of smoking amongst adolescents.

Objective of the study

- (i) Review some of the recent literature and present a comprehensive overview of factors responsible for high risk behaviours in adolescents
- (ii) Conduct a survey with school counsellors of adolescents to do an awareness versus practice analysis of various factors associated with adolescent smoking behaviour.
- (iii) Based on findings develop an Awareness-Practice Grid to get insights for designing and implementing focused interventions for professional development of school counsellors to prevent smoking behaviour in adolescents.

Research methodology

A descriptive research approach was used to explore the extant knowledge in the area of adolescent high risk behaviour with specific emphasis on smoking behaviour. Based on related literature review the factors that have a major impact on smoking behaviour in adolescents were shortlisted.

Based on these identified factors a checklist was prepared in consultation with 10 experts from the field of Psychology, Education, Psychiatry and Curriculum development. The checklist was then administered to 100

school counsellors dealing with adolescent students from Delhi NCR schools. The checklist helped assess their conceptual understanding of the identified factors and also if the interventions they used with adolescents were based on these factors.

Measurement

Based on extensive literature review, the following factors were identified to have an impact on adolescent smoking behaviour:

1. **Neurobiology of adolescent brain-** Neurobiology offers the perspective that in adolescent brain while the cognitive control is not fully available, the bodily sensations are at their peak due to pubertal changes. Thus, in adolescents, there exists a gap in two of the main brain areas namely, pre-frontal cortex and limbic reward system because of which they meet their bodily needs through bottom-up reward processes that are risky in nature (7). Due to an underdeveloped pre-frontal cortex, prudent judgement, rational thinking and logical behaviour have extremely low impact on adolescent reward valuation and emotional reactivity (8). Therefore, adolescence is a period of high vulnerabilities owing to this evolutionary difference in periods of maturation of various brain areas and massive reorganization that is taking place in the brain (9). In adolescents the mature emotional brain when subject to stressors leads them towards risky behaviours as a coping mechanism because their analytical mental abilities are just not available to them to handle those stressors. So, to cope with stressors and avoid feeling depressed, adolescents get into high risk behaviours like smoking, drug abuse, sexual activities, violence, addiction etc. (10).
2. **Identity Styles-** According to APA dictionary of psychology, Identity style can be defined as the manner in which an individual sees a problem and maintains his sense of self while dealing with it. Identity styles can be broadly classified as:
 - (i) Informational identity style- Here an individual remains focused on the problem and is open to seeking social support to address the problem. The individual uses his anxiety related to the problem in a constructive manner.
 - (ii) Diffuse-avoidant identity style- Here an individual primarily uses his emotions to cope with the problem. Such an individual gets involved into wishful thinking and distances himself socially.
 - (iii) Normative identity style- Here an individual chooses to avoid the stressor, is highly oriented towards his values and engages in activities that reduce stress as a means of coping (11).

Tendency towards high risk behaviour including smoking in adolescents is seen to have a negative correlation with Informational and Normative identity styles while a positive correlation with Diffuse-avoidant identity style (12).

3. **Stress-Diathesis influence-** An adolescent's brain that is undergoing extensive developmental changes is highly susceptible to the environmental influences and how they interact with inherent genetic predispositions (13). The interaction of these inherent genetic factors and environmental influences can lead to risk taking behaviours in adolescents (14). An under-developed pre-frontal cortex that is incapable of handling environment imposed stress pushes an adolescent towards risky behaviour more when influenced by genetic predispositions. Stress- Diathesis model, which is a framework for understanding of development of a psychological disorder in an individual, states that- inherent vulnerability called as

Diathesis when gets coupled with environmental stressors can lead to development of psychological disorders. According to this model, if an individual is highly predisposed to a disorder, even a little amount of stress can trigger its onset (32).

4. **Working Memory capacity-** Working Memory can be defined as a neural pathway in the brain that has a limited capacity and provides temporary storage of incoming information which can be used for executive functions such decision making, critical thinking, planning etc. (15). It is seen that a working memory with reduced capacity makes an individual more prone to temperamental and impulsive behaviours (16). A reduced working memory is a good predictor of impulsive behaviour and decision making style that is tilted towards achieving short term goals rather than analysing long term consequential impact of actions (17). Thus, working memory capacity can be used as a predictor of risk taking behaviour in adolescents (18).
5. **Peers Interactions-** Instinctively, adolescents are inclined towards confirming more with their peers than with adults to feel accepted (19). Socializing with peers makes for an important part of development in adolescents and success amongst peers is seen as a major achievement during adolescence. This motivates them to become more like their peers and get into similar behaviours and activities including tobacco use (20).

Evidence suggests that adolescents indulge more in high risk behaviour like smoking, drug and alcohol use when in the company of peers than alone (21).

6. **Family Relationships-** A family atmosphere that is full of conflicts and offers poor care and monitoring to adolescents is a major contributing factor in adolescents getting into high risk behaviour (22). Families which are constantly under conflict and have issues like restrained relationships, no time for adolescents, financial instability, parents getting involved in violence & addiction, parental absence, no discipline, have a negative impact on adolescents and lead them towards risky behaviours (23). According to WHO, it is important to focus on empowering people to have family environments that are supportive, friendly and caring for the adolescents (24). How adolescents view their relationship with parents is one of the major deciding factor in their getting into addictive, sexual and violent behaviours. Parental monitoring and open communication is seen to prevent not only initiation of drugs but also alcohol, smoking and sex in adolescents (28). Adolescents perceive parental bonding and open communication as a support system and absence of theses diverts them towards risk taking sexual behaviours at an early age (29). Authoritarian style of parenting with strict control, poor emotional bonding and limited communication negatively impacts relationship of adolescents with their parents and can lead to such tendencies (30). Adolescents who perceived their parental support as high displayed positive response to reduction of high risk behaviours including tobacco use, violence, drugs, suicide and sex (31).
7. **Internet Use-** DSM 5, the Diagnostic and Statistical Manual of Mental disorders; 5th Edition issued by American Psychiatric Association (APA), has categorized Internet Gaming as a type of behavioural addiction (25).

Based on social cognitive theory use of electronic media by adolescents can lead to observing, learning and imitating high risk behaviours smoking and alcohol use. Studies show that great amount of time spent on the Internet higher likelihoods of smoking by adolescents(33).

A study on 11356 school going adolescents of average age 14.9 years revealed that psychopathological disorders in adolescents have a strong correlation with internet use. In the study the adolescents were put into three sub categories based on the amount of time they spent on internet. These were:

Pathological Internet Use (PIU),

Adaptive Internet Use (AIU)

Maladaptive Internet Use (MIU)

It was observed that PIU adolescents displayed higher tendencies for development of psychopathological disorders, depressive symptoms and other conduct disorders leading to coping behaviours, in comparison to AIU and MIU adolescents (26).

In another study it was concluded that there is a strong positive correlation between self-Injurious behaviour and internet addiction amongst adolescents. In the study all of the adolescents who were addicted to internet displayed higher risk of getting into self-injurious behaviour (27). Also PIU and tobacco use have a significant positive correlation (34).

Tool development and administration

If the above factors are considered by stakeholders while designing interventions for adolescents, can address the issue of tobacco use among adolescents. Since adolescents spend most of their time in schools the impact of school level counselling can be far reaching in achieving this goal.

Based on the above assumption the researchers developed a checklist to measure awareness and practice aspects amongst school counsellors while dealing with adolescent students. The checklist consisted of two parts. Part one was to assess their awareness of above factors with respect to smoking behaviours among adolescents. Part two, to know if they consciously practiced interventions based on these factors with adolescents to reduce chances of getting into tobacco use by them. Both parts had answers to be given on 5 point rating scale with Awareness/ Practice responses ranging from Very low, Low, Moderate, High, to Very high. Based on the responses, Very low option was given 1 point, Low-2, Moderate-3, High-4 and Very high-5.

Due to COVID-19 it was not possible to meet the respondents physically hence, google forms were used to collect the data. Each participant was assured of confidentiality.

It is evident from above discussion that smoking behaviour in adolescents cannot be contributed to a single variable. Based on the responses given by the participants data analysis was conducted using Microsoft Excel and a two by two Awareness Performance Grid was constructed. The significance and implications of the grid results are discussed below.

Data Analysis and Result

Correlation

To start with, Pearson correlation coefficient was calculated for awareness and practice by school counsellors of each of 7 factors known to be associated with adolescent smoking behaviour. The results (Table I) showed that for all 7 factors there was a significant positive correlation between awareness and practice. This indicates that increasing awareness about a factor leads to its practice. However, the correlation was not strong positive (>0.8) indicating that in spite of awareness there can be a low practice for which the reasons can be explored.

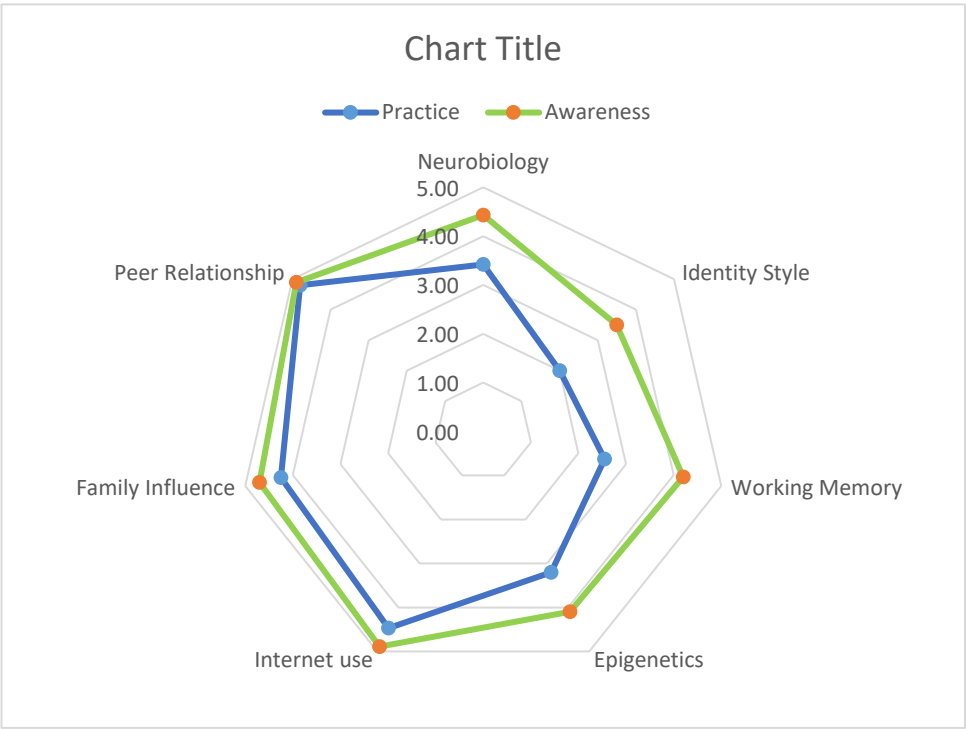
Table I Pearson Correlation

	Awareness & Practice
Neurobiology	0.32
Identity Style	0.58
Working Memory	0.51
Epigenetics	0.53
Internet use	0.48
Family Influence	0.58
Peer Relationship	0.63

Mean and standard deviation

The mean and standard deviation were calculated for the various factors associated with adolescent smoking behaviour based on the responses (Table-2). Means for Awareness ranged from 3.50 to 4.90 and standard deviations from 0.30 to 0.82. While the Means for Practice ranged from 2.00 to 4.80 and standard deviations from 0.43 to 0.87. Later mean difference was calculate based on which the factors are relatively ranked showing the gap between their awareness and Practice among school counsellors. The factor, Working memory capacity was ranked No.1 because it displayed the largest gap between its Awareness and Practice by the respondents. On the other hand factor Internet use was ranked No.6 because it displayed the least gap between its Awareness and Practice by the respondents (Figure-I).

Figure-I Difference between Awareness and Practice



Paired t-test

To evaluate the differences between Awareness and Practice of factors associated with adolescent smoking behaviour among school counsellors, paired-sample t-tests were conducted (Table II). The results showed a significant difference in Awareness and Practice for all 7 factors among school counsellors. For all the 7 factors the scores of Awareness were higher than those of Practice.

Table-II Analysis of difference between Awareness and Practice

	Variable	Awareness		Practice				
		Mean	Standard Deviation	Mean	Standard Deviation	Mean Difference	Rank	t
1	Neurobiology	4.43	0.67	3.72	0.87	0.71	4	9.07560258
2	Identity Style	3.50	0.75	2.00	0.70	1.50	2	22.7601242
3	Working Memory	4.20	0.78	2.55	0.81	1.65	1	21.0633964
4	Epigenetics	4.10	0.82	3.20	0.86	0.90	3	10.9401356
5	Internet use	4.89	0.31	4.47	0.61	0.42	6	7.84718289
6	Family Influence	4.70	0.46	4.25	0.74	0.45	5	7.38586626
7	Peer Relationship	4.90	0.30	4.80	0.43	0.10	7	3.00000000

Grid for Awareness-Practice- GAP

A grid was constructed for Awareness and Practice among school counsellors with respect to various factors associated with smoking behaviour in adolescents. The grid has four Quads (Table III):

Table III Factors placement in quadrants

Quadrant	Characteristics	Factors
Quad I	Awareness high Practice high	Internet use, Peer interactions, Family relationships
Quad II	Awareness high Practice low	Working memory capacity, Neurobiology of adolescent brain, Epigenetics
Quad III	Awareness low Practice low	Identity styles
Quad IV	Awareness low Practice high	None

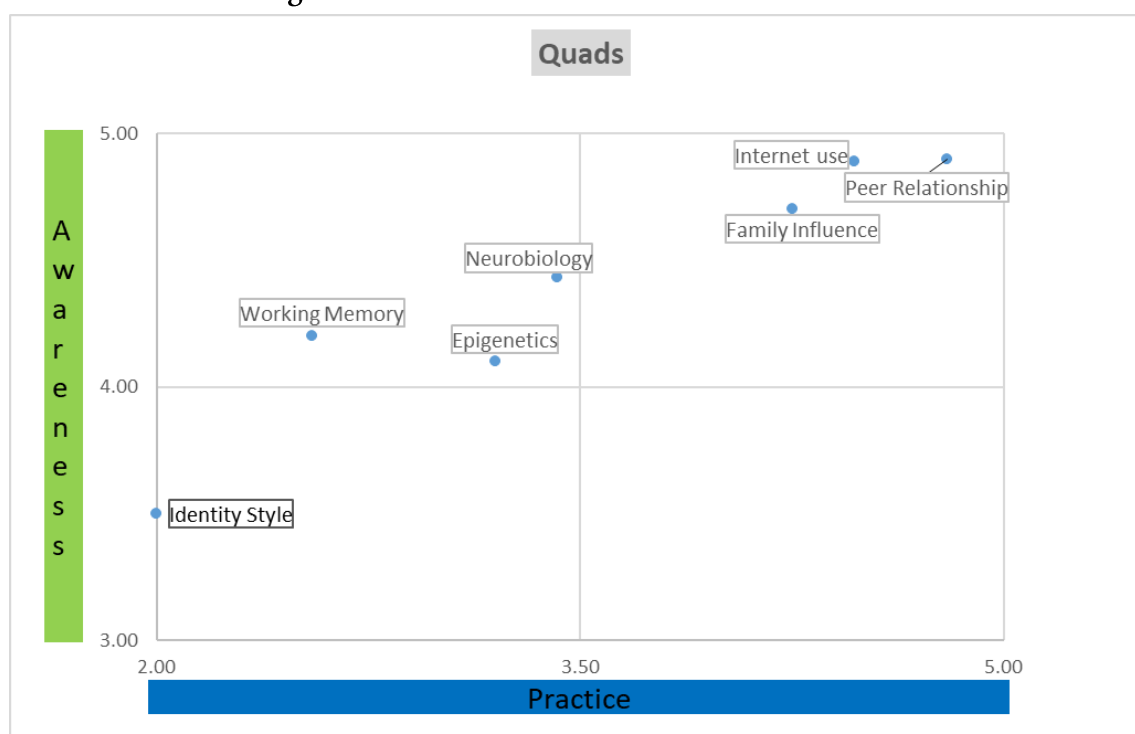
Based on mean scores of all the 7 factors a graph was plotted with Awareness on Y-axis and Practice on X-axis. The mean value 4 in awareness axis and mean value 3.5 in practice axis served as median points and divided the graph into four quadrants- each represented as a Quad.

Quad I represented high awareness of factors followed by high practice in interventions. The factors that fell into this Quad were Internet use, Peer interactions, Family relationships.

Quad II required low mediation because the counsellors had high awareness of their role in contributing to smoking behaviour in adolescents but the practice scores were less. The barriers in their practice in interventions needs to be assessed. These factors were Working memory capacity, Neurobiology of adolescent brain, Epigenetics. Quad III required highest mediation because the counsellors not only had low awareness of their role in contributing to smoking behaviour in adolescents, they also had very low practice scores in interventions used by them. There has to be major training programs required for factors falling in this Quad. This factors was Identity styles.

Quad IV requires an analysis of over practice of these factors in interventions in absence of any awareness of need to use these in interventions. These are majorly practiced blindly as demand of the system and rigid belief system rather than being need based. None of the 7 factors fell in this Quad (Figure II).

Figure II: GAP - Grid for Awareness and Practice



Discussion

In the current study, the Grid for Awareness-Practice (GAP) was constructed to assess the understanding school counsellors have with respect to the factors contributing to smoking behaviour in adolescents and if they practiced this in their counselling interventions with the adolescents. The starting point was to see if awareness of these factors had any correlation with practice. It was found that all factors had a significant positive correlation between their awareness and practice. Which means that if awareness of these factors is increased it will have a high likelihood of their being used in counselling interventions by counsellors. Counsellors reported highest awareness of Peer relationships a contributing factor in smoking behaviour in adolescents and expressed the highest use of it in counselling interventions. On the other hand the factor Identity Styles of which they reported to have the least awareness was described as being least used by them. The next step was mean difference for all 7 factors contributing to smoking behaviour in adolescents was calculated. There was significant difference awareness and

practice in all 7 factors the largest being for Peer Relationships and smallest for Working Memory Capacity. This provided insights into the gap that exists between awareness and practice of each factor and to understand how to bridge this gap. Finally, based on above data an Awareness-Practice Grid was constructed with Internet use, Peer interactions, Family relationships factors falling in 1st Quad where in both awareness and practice of them was high. This Quad required the no mediation because the mere maintenance of these practices will result in favourable outcomes. Factors, Working memory capacity, Neurobiology of adolescent brain, Epigenetics were placed in Quad 2 where their awareness in counselors was high but the practice in interventions was low. The factors in this Quad require low mediation which is limited to understanding the barriers faced by counsellors in practicing these factors in their interventions inspite of being aware of their significance. Quad 3 bearing the Factor, Identity Styles, requires maximum work because it has factors of which the awareness as well as practice by counsellors was reported to be low. Mediation is required in terms of training the counsellors regarding the role these factors play in checking smoking behaviour in adolescents and orienting them towards ways in which these can be incorporated in counselling interventions. Finally, in Quad 4 was for factors which had high practice but low awareness. This Quad represents following the set practices blindly without the awareness of their need to be practiced. For the current study no factors fell in this Quad. It is a positive aspect because it reflects upon the awareness and professional competence of counsellors wherein they do not follow practices blindly.

Limitations and suggestions:

This study is limited in terms of:

Firstly, the number of factors contributing to smoking behaviour in adolescents. The study can be conducted with more factors in the future.

Secondly, the region for the study was limited to school counsellors in Delhi NCR region. Similar studies can be conducted in other geographical areas that are culturally diverse.

Thirdly, the data analysis of the current study was limited to correlational and paired t-test treatments. More statistical tools can be used to draw diverse inferences for the available data.

Fourthly, the study only looks into smoking behaviour in adolescents. More studies can be conducted on other risky behaviour tendencies in adolescents.

Lastly, the interpretation of Grid for Awareness-Practice was limited to focusing on Quad 2 and Quad 3. Future studies can go deeper into aspects of each Quad.

Conclusion:

It is evident from the current study that a great amount of research has happened which explores various aspects of smoking behavior in adolescents. What has not been researched thoroughly is how what is researched about smoking behavior in adolescents is practiced at grassroots level. Most of the emerging research combined with data analytics needs to consider the use of above factors in counselling interventions at school level.

Above findings not only forecast the awareness of desired factors in checking the occurrence of smoking behavior in adolescents they also bring forth the insight that practice of these factors in counselling interventions by school counsellors can go a long way in addressing the developmental challenges of adolescents and understanding and checking such tendency among them.

In the study, the analysis of awareness and practice aspects of various factors potentially contributing to smoking behaviour in adolescents done with school counsellors dealing with adolescents helped list the factors like Internet use, Peer interactions, Family relationships, Working memory capacity, Neurobiology of adolescent brain, Epigenetics, Identity styles, that need to be more extensively used by the counsellors in their interventions. It also provided insights into coping mechanisms based on Identity Styles that need to be included in greater detail in professional development of counsellors to increase their awareness of them. These findings can be utilized by the Ministry and apex bodies in designing counselling interventions for adolescents at school level. At the same time these can provide theoretical insights into formalizing focused and culturally relevant models to involve not only adolescents but also other stakeholders like their care givers, teachers, academic institutes, health care providers and policy makers to reduce risk taking behaviour in them.

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