

Analysis of trauma exposure, symptomatology and functioning in Jewish Israeli and Palestinian adolescents

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Background

There has been no reported research comparing Jewish Israeli and Palestinian adolescents regarding the effect of ongoing political violence on adolescent psychosocial, family, post-traumatic stress disorder (PTSD) and aggression problems.

Aims

To compare Israeli and Palestinian responses regarding the relationship between exposure to traumatic events and psychosocial, behavioural, emotional and family problems.

Method

A cluster sample of youths aged 14–18 years, including 442 Jewish Israeli adolescents in Ariel, Haifa and Tel-Aviv, and 450 Palestinian adolescents in Gaza cities, villages and refugee camps were surveyed in 2006 using our Traumatic Events Questionnaire (TEV), the Brief Symptoms Inventory (BSI), the PTSD Symptom Scale – Interview (PSS-I), the Index of Peer Relations scale (IPR), Buss–Perry Aggression Questionnaire (BPAQ) and the MacMaster Family Assessment Device (FAD).

Results

Palestinian respondents had higher scores in the TEV, BSI, PSS-I and BPAQ questionnaires, and greater problems in functioning as revealed in the IPR and FAD. The social functioning of the adolescents with their peers predicted mental health symptoms and PTSD symptoms. Lower socioeconomic status predicted mental health symptoms, PTSD, pathology of participants' family functioning and the social functioning of the adolescents with their peers. Parents' education positively effected the FAD score and the avoidance item on the PSS-I, and religiosity improved the score on the FAD. Females reported more symptoms on the BSI and PSS-I than males, and males more symptoms on the FAD and IPR than females.

Conclusions

Both respondent groups had significant emotional and behavioural problems. Individual and community treatment, and community and social development, are likely to be useful for both populations, particularly Palestinians.

Declaration of interest

None.

The collapse of the July 2000 Camp David summit provided the background for a new round of political violence events between Israelis and Palestinians, often referred to as the El-Aqsa Intifada.¹ As a result, both Palestinian and Israeli youths were exposed to trauma. Political violence has long been understood to be deleterious to the well-being of communities,² adults³ and children.^{4,5} Families' livelihood, family stability and family functioning are all negatively influenced.^{6,7} Individuals may suffer bereavement,⁸ traumatic stress including post-traumatic stress disorder (PTSD),⁸ behavioural problems, reduced school attendance, and long-standing physical and psychological vulnerabilities.¹⁰ Whereas the influence of political violence on Palestinian adolescents has been researched extensively,^{7,11,12} its influence on Jewish Israeli adolescents has been mostly ignored. Moreover, we have not encountered a single study comparing the ongoing conflict's effects on adolescents from both sides. This paper is the first to compare adolescents' exposure to the conflict, on both sides of the Green Line separating Israel and Palestine. We aim to compare perceptions regarding the relationship between exposure to traumatic events and psychosocial, behavioural, emotional and family problems among Israeli and Palestinian adolescents. We hypothesise that: Palestinian participants will have symptoms reflective of greater exposure to political violence compared with Jewish Israeli participants; Jewish Israeli participants will have a better social-mental health condition compared with Palestinian participants; and exposure to traumatic events will predict social-mental health above and beyond nationality (Jewish Israeli *v.* Palestinian) and socio-demographic variables.

Method

The current research is based upon collaboration between a team of researchers in Israel and in Palestine. The team selected, developed, piloted and distributed the self-report questionnaire instruments in 2006, and coordinated research via video conferencing, teleconferencing, and face-to-face meetings. Data collection was overseen by Palestinian and Israeli team leaders.

Sample

The sample consisted of male and female school-attending adolescents aged 14–18 from Israel and the Gaza strip, with a total of 892 participants (442 Israeli Jews and 450 Palestinians). Participants were recruited from three Israeli urban centres. Tel-Aviv and Haifa are district cities with heterogeneous populations in culture, religion and class, and Ariel is a West Bank settlement and is more homogeneous. All three cities were subject to suicide bombings and other political violence events since the outbreak of the Intifada in September 2000.¹³ Although Ariel suffered from fewer major terror attacks, its location within the West Bank may promote exposure to a greater number of minor political violence events. To ensure comparable internal diversity, the Gaza sample was recruited from cities, villages and refugee camps. In Israel we applied the questionnaire randomly to schools and then randomly selected coeducational grades (grades 8–12). In Gaza, schools were single sex, and an identical number of boy's and girls' schools were selected from grades 8 through 12. Bachelor of Arts

(BA) and Master of Arts (MA) students in Israel and Palestine were trained to coordinate questionnaire distribution and to answer any respondent queries. We used seven instruments.

Background sociodemographic questionnaire

Thirteen items probed the socioeconomic status of participants' family, and included questions regarding gender, age, family structure and dwellings (details available from the authors on request).

Political violence

In order to assess political violence the researchers created an 18-item Traumatic Events Questionnaire (TEV; details available from the authors on request) tailored to each community's language (Hebrew or Arabic), and to their respective modes of exposure to political violence (for example, the Israeli questionnaire asked about bomb or missile attacks, whereas the Palestinian instrument probed about the presence of soldiers and bombs from airplanes). Nominal scale questions self-reported individual and friend/relative exposure. A total score was computed by summing all positive answers (scale of 0–18), and thus a high score indicated more exposure to political violence. The internal reliability of the questionnaire was adequate among both the Jewish adolescents (Cronbach's $\alpha = 0.71$) and among the adolescents in Gaza (Cronbach's $\alpha = 0.70$).

Mental health

Mental health was assessed with the Brief Symptom Inventory (BSI).^{14,15} This measure consists of 53 self-reported items covering nine symptom dimensions: somatisation, obsession–compulsion, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychotism; and a composite measure of General Severity Index (GSI). A mean score was computed for each subscale and it ranged from 0 to 4 with a higher score indicating more mental health problems (scores of 2.52 and above indicate a positive clinical diagnosis). The internal reliability of the nine subscales is adequate (Cronbach's $\alpha = 0.71$ – 0.81) and the test–retest reliability is satisfactory ($r = 0.60$ – 0.90). The measure also has a moderate level of validity. Norms and scores from adolescent populations in Israel and the USA are available for comparison. The internal reliability of the current measure, in general, and of its subscales was measured in a Jewish research population¹⁶ with reasonable results (Cronbach's alphas range from 0.62 to 0.90). In the current study the reliability of the subscales among the Jewish adolescents was Cronbach's $\alpha = 0.61$ – 0.82 and 0.96 for the GSI, and among the adolescents in the Gaza Strip 0.56–0.74 for the subscales and 0.94 for the GSI.

Post-traumatic stress disorder

Post-traumatic stress disorder was measured with the PTSD Symptom Scale – Interview (PSS–I).¹⁷ This measure is a 17-item instrument in which each symptom is rated on a 4-point scale. Subscale scores are calculated by summing items in each of the PTSD symptom clusters: re-experiencing, avoidance and arousal. A mean score was computed for each subscale and total score with results ranging from 1 to 4, and a higher score indicating greater PTSD. The scale has high internal consistency (Cronbach's $\alpha = 0.85$) and moderate to high correlations with other measures of psychopathology. The PSS–I has high test–retest reliability ($r = 0.80$) and interrater reliability ($k = 0.91$). In the current study, the reliability of the total score was Cronbach's $\alpha = 0.89$ and 0.75–0.78 for the subscales among adolescents

from Israel, and 0.84 for the total score and 0.62–0.75 for the subscales among adolescents from Gaza.

Social functioning

To assess the social functioning of the adolescents with their peers, we used the Index of Peer Relations scale (IPR), which is a standard measure for assessing peer group relationships.¹⁸ The questionnaire consists of 25 questions suitable for respondents aged 12 and older. The sum score of the instrument was computed (ranging 0–100), with a higher score indicating more problems in relationships with friends. The measure has a cut-off point at 35 points: individuals who score below 35 are categorised as being within the norm and those who score above 35 are categorised as having problems. The measure has high internal reliability (Cronbach's $\alpha = 0.94$) and a low standard measure error (4.44). The peer group measure also has high validity and is able to discriminate between clinical and normal populations. Based on prior research the internal reliability of the measure has been found to be high in an Israeli study of Jewish adolescents¹⁷ (Cronbach's $\alpha = 0.93$, $n = 146$), and in studies among Bedouin Arab adolescents (Cronbach's $\alpha = 0.89$, $n = 256$).¹⁹ The reliability of the scales among the Jewish adolescents in the current study was Cronbach's $\alpha = 0.94$, and 0.86 among the adolescents in Gaza.

Aggression

In order to assess adolescents' aggressive responses and their ability to channel those responses in a safe, constructive manner, we used the Buss–Perry Aggression Questionnaire (BPAQ). This 34-item instrument assesses adolescents' aggression on four subscales: physical aggression, verbal aggression, anger and hostility.²⁰ The mean score was computed for each subscale and total score. Each scale ranges from 1 to 5 with a higher score indicating more aggressive behaviours. The internal consistency of the BPAQ is relatively high (Cronbach's $\alpha = 0.89$). The BPAQ is a stable instrument with good test–retest correlations of 0.80. Scores on the BPAQ subscales were moderately correlated with each other. However, when the variance in the correlations due to the anger score was partialled out, correlations were not significant. This supports the theoretical validity of the BPAQ in that the associations between physical aggression, verbal aggression and hostility are as a result of their connection with anger. Scores also have good concurrent validity.²¹ In the current study the reliability among the participants in Israel was Cronbach's $\alpha = 0.89$ for the total score and 0.72–0.75 for the subscales, and among the participants in Gaza Strip, 0.86 for the total score and 0.47–0.79 for the subscales.

Family functioning

In order to assess the overall health and pathology of participants' family functioning, we used the McMaster Family Assessment Device (FAD).^{22,23} The FAD describes structural and organisational properties of the family group and the patterns of transactions among family members that have been found to distinguish between healthy and unhealthy families. This instrument includes 60 items on 6 dimensions of family functioning and one general functioning scale. All subscales range from 1 to 4, with a higher score indicating more problems in a family's functioning. Cut-off points discriminating between 'clinical' and 'normal' families in American populations are available, although there are none for Israeli families. The scale has satisfactory reliability (Cronbach's $\alpha = 0.72$ – 0.92), good test–retest reliability ($r = 0.66$) and high validity, as indicated by

comparing the scale's scores to other measures (e.g. Epstein *et al* and Miller *et al*).^{22,23} At this stage we analysed only the 12 items that assess the family's general functioning. One study²⁴ found that these 12 items give a satisfactory picture of the family's general functioning and as a result there is no need to use all 60 questions. In our study the reliability among the participants in Israel was Cronbach's alpha 0.85, and 0.64 among the participants from Gaza Strip.

Analytical strategies

Several analytical strategies were employed. First, we assessed whether there were differences between the two nationality samples in terms of their sociodemographic background. These comparisons utilised chi-squared analysis for categorical socio-demographic variables and *t*-tests for continuous interval or ratio scale variables. Then we focused on the association between nationality and the research-dependent measures. For this, *t*-test analysis were conducted in order to compare the two groups on trauma exposure, psychosocial, family functioning, PTSD and aggression. Next, we focused on the association between political violence and the research-dependent variables using Pearson correlations. Finally, we assessed how political violence and nationality might predict the dependent variables using multiple regressions, while controlling for background variables.

Results

The Jewish Israeli and Palestinian groups were equivalent in terms of both gender (males *v.* females) and age (online Table DS1). However, as expected, Palestinian participants were found to be

more religious, to have more siblings, and a higher percentage of married parents compared with the Jewish Israeli sample. Jewish Israeli parents were found to be more educated and the economic status of this population was found to be higher than the Palestinian sample. Within the Jewish Israeli population, less than 13% of fathers and less than 20% of mothers were unemployed, compared with 51.6% of fathers and 89.6% of mothers in the Palestinian sample. A higher percentage of smokers were found in the Jewish Israeli sample.

A series of independent sample *t*-tests were conducted in order to examine the differences between Jewish Israeli and Palestinian participants in their exposure to political violence, mental health, family and social functioning, and aggression (prior to conducting *t*-tests, Pearson correlation and regression, all dependent variables were tested for normality distribution; Skewness and Kurtosis indices indicated normal or near normal distribution). Palestinian participants reported a significantly higher level of exposure to political violence compared with Jewish Israeli participants. Palestinian participants also reported significantly more mental health symptoms on all BSI subscales (somatisation, obsession–compulsion, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychotism) and on the GSI, as well as on the total PTSD score and its subscales (re-experiencing, avoidance, arousal). Furthermore, Palestinians reported significantly more problems in both family functioning and social functioning, and also higher levels of aggression on the total aggression questionnaire and all of its subscales (physical aggression, verbal aggression, anger, hostility) (Table 1).

As presented in Table 2, significant Pearson correlations were found between all the dependent variables for both the Jewish Israeli and the Palestinian populations (BSI, PTSD, peer relations,

Table 1 A comparison of Jewish Israeli and Palestinian participants on political violence and psychosocial functioning

	Jewish Israeli (<i>n</i> = 442)		Palestinian (<i>n</i> = 450)		<i>t</i> -test
	Mean	s.d.	Mean	s.d.	
Political violence					
Traumatic Events Questionnaire	2.57	(2.41)	2.96	(2.25)	2.46*
Mental health symptoms (Brief Symptom Inventory)					
Somatisation	0.81	(0.71)	1.08	(0.72)	5.74***
Obsession–compulsion	1.16	(0.80)	1.60	(0.71)	8.58***
Interpersonal sensitivity	1.01	(0.90)	1.39	(0.86)	6.50***
Depression	0.96	(0.76)	1.21	(0.81)	4.66***
Anxiety	1.13	(0.77)	1.32	(0.76)	3.54***
Hostility	1.11	(0.93)	1.33	(0.77)	3.72***
Phobic anxiety	0.56	(0.60)	1.43	(0.90)	16.96***
Paranoid ideation	1.36	(0.87)	1.25	(0.74)	1.98*
Psychotism	0.77	(0.75)	1.29	(0.81)	10.02***
General Severity Index	0.99	(0.64)	1.32	(0.59)	8.21***
Post-traumatic stress disorder (PTSD)					
PTSD Symptom Scale – Interview	1.29	(0.39)	1.87	(0.53)	18.75***
Re-experiencing	1.28	(0.44)	1.89	(0.69)	15.54***
Avoidance	1.24	(0.39)	1.80	(0.60)	16.37***
Arousal	1.37	(0.52)	1.96	(0.63)	15.11***
Family functioning					
Family Assessment Device	1.81	(0.51)	2.97	(0.44)	13.93***
Social functioning					
Index of Peer Relations	17.79	(14.49)	26.37	(15.11)	8.63***
Aggression					
Buss–Perry Aggression Questionnaire	1.99	(0.58)	2.26	(0.56)	6.94***
Physical aggression	1.83	(0.78)	2.12	(0.79)	5.62***
Verbal aggression	2.57	(0.82)	2.45	(0.70)	2.34***
Anger	1.79	(0.67)	2.30	(0.66)	11.30***
Hostility	1.97	(0.67)	2.23	(0.68)	5.86***

PTSD, post-traumatic stress disorder.
P* < 0.05, *P* < 0.01, ****P* < 0.001.

Table 2 Pearson product moment correlation coefficients between the research variables: Jewish Israeli participants above the diagonal, Palestinian participants below the diagonal

	1	2	3	4	5	6
1 General Severity Index		0.39**	0.38**	0.47**	0.54**	0.18**
2 Family Assessment Device	0.33**		0.42**	0.25**	0.29**	0.04
3 Index of Peer Relations	0.38**	0.38**		0.23**	0.25**	0.04
4 Post-traumatic stress disorder	0.61**	0.23**	0.27**		0.29**	0.24**
5 Buss–Perry Aggression Questionnaire	0.54**	0.19**	0.31**	0.46**		0.15**
6 Political violence	0.13**	0.03	0.14**	0.23**	0.20**	

* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$.

aggression, family functioning). Thus, participants reporting higher levels of mental health symptoms also reported higher levels of PTSD symptoms, more problems in family and social functioning, and more aggression. Significantly, exposure to political violence was found to be positively correlated with most of the mental–social functioning variables. Specifically, exposure to political violence in the Jewish Israeli participants was significantly associated with most of the mental health symptoms (except for phobic anxiety) and with all of the PTSD measures (total score and subscales). Exposure to political violence was also correlated with most of the aggression measures (except for hostility). However, exposure to political violence was not significantly correlated with family and social functioning. In the Palestinian sample, exposure to political violence was significantly associated with most of the mental health symptoms (except for obsession–compulsion, interpersonal sensitivity and phobic anxiety) and with all of the PTSD measures (total score and subscales). In addition, it was also correlated with most of the aggression measures (except for verbal aggression), and with social functioning. However, exposure to political violence was not significantly correlated with social functioning.

Multiple regressions were conducted in order to examine the effect of exposure to political violence and nationality (Jewish Israeli *v.* Palestinian) on mental health symptoms, PTSD symptoms, family functioning, social functioning and aggression, at the same time controlling for various sociodemographic variables (economic status, parents education, gender and religion). Exposure to political violence was found to be a major significant predictor. Thus, participants who were exposed to greater political violence reported higher levels of various mental health symptoms (somatisation, obsession–compulsion, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychosisism, GSI), and more PTSD symptoms. In addition, exposure to political violence was found to be a significant predictor of problems in family functioning, social functioning and aggression.

Nationality was also found to be a major predictor. As shown in Table 1, Palestinian participants, in contrast to the Jewish Israeli participants, reported higher levels of mental health symptoms and PTSD symptoms, as well as more problems in family and social functioning, and aggression.

Since both exposure to political violence and nationality were found to be major predictors of social–mental health, an important point is whether the association between exposure to political violence and social–mental health are similar across nationalities.

In order to peruse this question, the interaction between exposure to political violence and nationality was tested. Regression results did not indicate a significant interaction term for any of the dependent variables (since the coefficients of the interaction term were not statistically significant for any of the dependent variables, they were omitted from online Table DS2 for brevity). These findings suggest that the exposure to political violence has a detrimental effect on social and mental health for both Jewish Israeli and Palestinian participants.

Several sociodemographic variables were also found to be significant predictors (online Table DS2). Higher economic status was related to lesser levels of mental health symptoms and PTSD, problems in family and social functioning and hostility. Gender was found to have a positive effect on mental health symptoms and PTSD, and a negative effect on family functioning, social functioning and aggression (especially physical aggression). Females reported greater mental health symptoms and more instances of PTSD than males, although males reported more problems in family and social functioning, and more aggression and physical aggression compared with females. Parents' education was found to have a significant effect only on family functioning and the avoidance item on the PSS–I. Participants with more educated parents reported fewer problems in family functioning and less avoidance. A similar effect was found for religion on family functioning: the more religious the participant, the less likely they were to report problems in family functioning.

Discussion

The higher Palestinian scores are not surprising. Research comparing a similar number of adult Jewish and Palestinian citizens in Israel reveals greater PTSD and depressive symptoms among Palestinians.²⁵ Previous studies looking at adolescent trauma among Palestinian children in Gaza reveal high levels of emotional and behavioural problems¹¹ and PTSD.¹² Research on Israeli citizens reveals similar emotional and behavioural problems.²⁶ For both populations, TEV, BSI, PSS–I and BPAQ results were high, and IPR and FAD results were problematic. Exposure to political violence is associated with head trauma,²⁷ bereavement, abnormal sleeping patterns,²⁸ withdrawal, numbness, hyperarousal,²⁹ emotional disorders and impaired school performance.³⁰ Acute trauma disturbances include flashbacks, nightmares and sleep disturbances, concentration problems, heightened alertness or hypervigilance, and avoidance of people and situations that evoke memories of the traumatic events.³¹ Chronic stress may be associated with such conflict and could lead, in turn, to problems of aggression,³² depression,³³ anxiety,³⁴ and regressive behaviours.³⁵ Among children and young adults, a variety of effects may occur including but not limited to truncated moral development,³⁶ change in school performance,³⁷ changed attitudes and beliefs, personality changes³⁸ and diminished hope for the future.³⁹

Violence is positively correlated with high TEV, BSI, PSS–I and BPAQ, and low IPR and FAD results. Many factors may exacerbate the response to TEV. Exposure to violence is significantly related to depression,⁴⁰ PTSD,¹¹ defensive coping,²⁵ less belief in the benevolence of others,⁴¹ fear of loss, and protection.⁴² These factors can play a significant role in therapeutic treatment for war-related trauma. There is some evidence that adolescents exposed to political violence may have greater concerns over school performance,⁴³ which is a particular problem in Gaza

due to the political occupation, the presence of checkpoints and the resulting lack of regular access to schools. Furthermore, there is a lack of access to schools of high quality.⁴⁴ Srour points out that since the beginning of the Second Intifada approximately 2.5 Palestinians were killed each day and 23% (827) of them were under the age of 18.¹⁰ Moreover, 3409 elementary school-age children were injured and more than 500 children arrested during this period for Intifada-related activities. According to statistics provided by B'Tselem (The Israeli Information Center for Human Rights in the Occupied Territories), 704 Israeli civilians were killed since the beginning of the Second Intifada, 119 of them were under the age of 18.⁴⁵

It is not surprising to see socioeconomic status as a major predictor in health and behavioural symptomatology. Socioeconomic status is well understood to have an impact on behavioural and emotional responses to political violence.⁴⁶ Lower socioeconomic status is a significant factor in Gaza, which has a significantly diminished economy in relation to Israel. According to the Central Intelligence Agency *World Factbook*,⁴⁷ the West Bank's Gross Domestic Product (GDP) in 2005 was estimated at US\$5.327 billion, including the Gaza strip (purchasing power parity); in 2005, both experienced GDP real growth rates of 5%. Also in 2005, GDP per capita rates (purchasing power parity) were estimated to be very low, at US\$1500 for both. In Israel, in contrast, the GDP in 2006 was estimated at US\$166.3 billion, or US\$26 200 per capita, and the real growth rate was estimated at 4.5%. According to recent reports by the World Bank and the United Nations, since September 2000 Palestinian poverty rates have increased from 25 to 60%, and unemployment rates from 23 to 45%.^{48–50} The community of residence may also be an socioeconomic status-related factor; previous war-trauma research shows that living in a neglected, isolated and depressed community is more highly correlated with low well-being,⁴³ and that living in a rural village is associated with more PTSD.⁵¹

The females in our sample tended to internalise stress more than males,⁵² and it is not surprising that more female than male respondents reported greater mental health symptoms and PTSD. Males, on the other hand, act out problems behaviourally, and it is not surprising that males reported more problems in family and social functioning, and more aggression and physical aggression. For both genders, social support is important, and previous research on war-related trauma among adolescents shows that missing friends and family is more highly correlated with low well-being.⁴³ Families are particularly important to both cultures; exposure to political violence leads to a multitude of significant changes in the structure and everyday actions of the family unit,^{53,54} which may have a negative impact on familial coping resources. Familial relations become overburdened by conflict as traditional normative understandings that define the family unit, structure and hierarchy are confronted.⁵⁵

Family education levels are a powerful buffer for mitigating FAD and PTSD symptoms. Previous research underscores the correlation of parental educational attainment and family functioning and coping.⁵⁶ In war-trauma research, lower levels of education are associated with higher PTSD.⁵⁰ Finally, religiosity is a buffer against greater FAD problems. Previous research confirms not only religiosity's positive association with several health outcomes,⁵⁷ but also that those exposed to political violence may have a greater faith in God.⁴¹

Clinical implications

These factors are all potentially significant in a clinical therapeutic setting. Clinicians can usefully appreciate the influence of socioeconomic factors upon emotional and behavioural problems

relating to trauma, and can work with individuals to enhance coping and resilience. So too can the interrelationship between emotional and behavioural problems and political violence exposure be understood clinically; a reduction in FAD problems through family therapy, as an example, could positively impact on PTSD or other behavioural problems. Any reduction in emotional problems could have a conversely positive impact on aggression, FAD or other behavioural issues.

The present study is limited in sample size and in sampling methods. Yet it provides compelling evidence that although political violence and behavioural and emotional problems were high among all respondents, they were particularly high among Palestinian youth. Any increase in mental health services directed towards adolescents and their families would be beneficial to both populations, but especially for the Palestinians. According to the Gaza Community Mental Health Programme, approximately 32% of Palestinian children suffer from an acute level of PTSD, to the extent that they are in need of professional intervention.⁹ Likewise, community development projects that improve local capacities, including employment, would be welcome in strife-ridden Gaza. But the ultimate solution for both sides is peace – something that seems elusive and out of sight, let alone within reach.

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