Original article

Self versus maternal reports of emotional and behavioral difficulties in suicidal and non-suicidal adolescents: An Israeli nationwide survey

G. Shoval \textsuperscript{a,b}, I. Mansbach-Kleinfeld \textsuperscript{c}, I. Farbstein \textsuperscript{d}, R. Kanaaneh \textsuperscript{d}, G. Lubin \textsuperscript{c}, A. Apter \textsuperscript{b,e}, A. Weizman \textsuperscript{a,b,f}, G. Zalsman \textsuperscript{a,s,b,g}

\textsuperscript{a}Child and Adolescent Psychiatry Division, Gha Mental Health Center, Tel Aviv University, PO Box 102, 49100 Petah Tikva, Israel

\textsuperscript{b}Sacker Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel

\textsuperscript{c}Mental Health Services, Ministry of Health, Jerusalem, Israel

\textsuperscript{d}Child and Adolescent Psychiatry, Ziv Hospital, Safed, Israel

\textsuperscript{e}Schneider Children's Medical Center of Israel, Petah Tikva, Israel

\textsuperscript{f}Division of Molecular Imaging and Neuropathology, Department of Psychiatry, Columbia University, New York, NY, USA

\begin{abstract}

There is relatively little research addressing parent-adolescent agreement as regards to reporting on adolescent suicidal behavior in general and their behavioral and emotional difficulties in particular. The objective of this study was to compare maternal and adolescents' reports on behavioral and emotional difficulties among adolescents with and without suicidal behavior. This nationally-representative sample included 906 adolescents and their mothers. The mothers and adolescents were interviewed and evaluated separately using the Development and Well-Being Assessment Inventory (DAWBA) and the Strengths and Difficulties Questionnaire (SDQ). Self-rated SDQ scores of the suicidal adolescents were significantly higher in all SDQ problem scales compared to the non-suicidal participants. In contrast, maternal-rated SDQ assessments failed to discriminate between these groups, except the Hyperactivity scale. We demonstrated that mothers of suicidal adolescents in the community hardly recognize the emotional and behavioral difficulties of their offsprings.

Conclusion. – The mental examination of the adolescent patient should be maintained as the central and most reliable source of information regarding the suicidal adolescent. Mental health services planning of national suicide prevention programs should take into account these poor mother–adolescent agreement findings.

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\end{abstract}

1. Introduction

Despite increasing awareness of adolescent suicidal behavior, rates of suicide are rising in this young age group [16]. Actually, suicide is currently the second or third leading cause of death among adolescents in the western world [15,16].

In the absence of laboratory tests predictive of suicidal behavior, multi-informant assessment of suicidal ideation and attempts remains the central and most essential component of risk assessment in child and adolescent psychiatry [34]. However, in many cases, informants report different information, and thus mental health professionals are faced with the challenge of integrating this information to establish an accurate diagnosis and proper risk assessment. Moreover, informant disagreement is a predictor of later development of major hazardous psychopathology such as deliberate self-harm and substance abuse as well as legal problems, expulsion from school, unwanted pregnancy and referral to mental health services [11].

Parent–child reporting agreement is a major issue in the field of child and adolescent psychiatry [37–39]. It has been established that parents and adolescents tend to give different reports in most childhood and adolescent-onset psychopathologies and in some physical disorders as well [1,6,8,9,20,24,30,33,36,42]. Thus, in most psychiatric scales and structured interviews, a separate interview of the parent and the child is recommended in order to achieve better accuracy in the evaluation of psychopathology [9,22,24,36,42]. This is particularly essential in the assessment of suicidal thoughts and behavior, which is critical for risk assessment [25].

There is relatively little research addressing parent-adolescent agreement about adolescent suicidal behavior in general and on reports of behavioral and emotional difficulties among adolescents with suicidal behaviors in particular [4,40].
In a previous publication based on the nationwide Israel Survey of Mental Health among Adolescents (ISMEHA) Study [27], rates of suicidal ideation and attempts were assessed in a representative non-clinical sample of 14–17-year-old adolescents living in the community (Zalsman et al., Parents vs. Adolescents’ Reports on Suicidal Behaviors: A Nationwide Survey, in preparation). This study, based primarily on the Development and Well-Being Assessment (DAWBA) Inventory, demonstrated that the agreement between mothers and adolescents was very low for suicide ideation and nonexistent for suicidal attempts.

The objective of this study was to compare maternal and adolescents’ reports of behavioral and emotional difficulties among adolescents with and without suicidal behaviors, using the Strengths and Difficulties Questionnaire (SDQ) as an assessment tool. Our hypothesis was that the mothers of the suicidal adolescents would report higher scores in the following areas: peer relationships, prosocial behaviors, hyperactivity and inattention, conduct disorders and emotional state compared to the mothers of the non-suicidal adolescents.

2. Subjects and methods

We describe here only a short summary of ISMEHA Study’s methods, while the fully detailed description of its sample, data collection, procedures and instruments has been published elsewhere [27].

2.1. Sample and procedures

The sample included 957 subjects, but complete data was available for 906 adolescents (age range 14–17 years) and their mothers. The sampling frame used was the Israeli National Population Register (INPR). This file included the name and home address of all legal residents of Israel born between July 2, 1987 and June 30, 1990, whether or not at school (n = 317,604). Only one child per family was included in the sample. Due to budgetary constraints, only settlements with more than 2000 inhabitants were included, which comprised 90% of the target population.

Mothers and adolescents were interviewed separately at home by two trained lay interviewers in the mother tongue of the participants. Twenty-two mothers refused to be interviewed but consented to their offspring’s participation, while 51 adolescents refused to participate, despite their mothers’ participation. Although multiple informant-based diagnoses are preferable, these cases were included because when using SDQ, diagnoses based on a single informant are common practice (Goodman, personal communication). Data on gender, population group and country of birth were obtained from the INPR. Additional socio-demographic data were provided by the interviewees and therefore denominators for the different variables vary.

The sample included 44 clusters, based on type of locality and gender. Taking into consideration cluster and design effects, the initial sampling included the 11 largest Israeli cities and the index adolescents in those cities were chosen through a systematic random sampling. All the smaller cities and towns were then stratified according to type of locality (Jewish and mixed Jewish/Arab cities or mainly Arab cities) and sampled with a probability proportional to size. In addition, 23 Jewish or mixed cities and 10 Arab cities were selected and 30 adolescents were sampled from each of these smaller cities through a systematic random sampling procedure. There were no replacements.

The total sample consisted of 1402 subjects. Response rate for the subjects whose address could be obtained and who were actually approached (located sample) (n = 1195) was 80% while for the total sample, which includes those subjects who could not be located even after major efforts as well as subjects who refused to participate, response rate was 68% (n = 957). No significant differences by gender or immigrant status were noted. The results were weighted back to the total population to compensate for clustering effects and non-responses.

The study was approved by the Israeli Ministry of Health Review Board. Written informed consents of the parents and their adolescent for the participation in the study were obtained after the nature of the study was fully explained.

2.2. Instruments

Diagnostic Assessment: self-reported and maternal-reported suicidal behaviors were assessed using the DAWBA [14]. The DAWBA, a multi-informant interview, combines a structured interview with open-ended questions regarding psychiatric symptoms and their impact on the adolescent’s life and his or her family. Responses to the structured questions generated a computerized diagnosis according to the DSM-IV-TR [2] criteria. Senior child psychiatrists (I.F, A.A. & R.K.) relied on the recorded comments to verify these diagnoses.

Emotional and behavioral difficulties – both self- and maternal-rated – were evaluated using the Hebrew, Arabic and Russian versions of the SDQ [28] (available at http://www.sdqinfo.org). The SDQ is also a multi-informant questionnaire, designed for the screening of mental health problems in children and adolescents [13]. This tool contains 25 items, 20 of them related to problem areas such as peer relationship, hyperactivity and inattention, conduct disorders and emotional symptoms. The remaining five items comprise a prosocial behavior scale. The Total Difficulties score includes only the four problem scales. This measure is increasingly being used in both the community and clinical setting thanks to its relative brevity and availability in the public domain (http://www.sdqinfo.org). The psychometric properties of the Hebrew version of the SDQ (SDQ-H) were demonstrated to be acceptable compared to other translated versions [28].

2.3. Statistical analysis

Statistical analyses were conducted using an SPSS-17 complex sample analysis module (IBM-SPSS Inc, Chicago, IL). Raw numbers and weighted proportions are presented for the characteristics of the study population. Mean SDQ scales’ scores and standard deviations according to adolescents’ report of suicidal ideation and suicidal attempts were calculated. Given the small number of cases with suicide ideation and suicide attempts, we used Mann-Whitney U statistics to compare self and maternal SDQ ratings for suicidal and non-suicidal adolescents and z values and significance are presented.

3. Results

A total of 906 adolescents participated in the study (50.3% males). Seventy-six percent (n = 611) were Jewish and the rest were Arab (n = 238) or Druze (n = 57). Forty percent (n = 300) had a mother with a post high-school education. Nearly 14% (n = 110) lived with a single/divorced/widowed parent and more than half had three or more siblings (n = 518); 23% (n = 204) had fathers who were out of the work force and 14% (n = 124) of families were welfare care recipients. Table 1 shows selected sociodemographic traits of the study population. Further epidemiological data on this cohort were presented in our previous report [27].

Suicidal ideation in the 4 weeks preceding the interview was reported by 4.1% (n = 38) of the sampled adolescents and attempted suicide by 1.4% (n = 15). Table 2 shows that the
maternal-rated mean scores did not differ significantly between adolescents who had suicidal ideation and those who did not in any of the SDQ scales. That is, mothers of adolescents who had suicidal ideation did not rate their children differently in the SDQ problem scales compared to mothers of adolescents without suicidal ideation.

In contrast, for the self-rated SDQ scores of the adolescents with suicide ideation, we found that scores were significantly higher in all the SDQ problem scales, compared to the participants who reported no suicidal ideation: in the Peer relationship problems (2.6 ± 1.6 vs. 1.8 ± 1.4, z = 3.34, P = 0.001), the Hyperactivity/Inattention (3.5 ± 2.0 vs. 2.9 ± 2.1, z = 1.97, P = 0.049), the Emotional symptoms scale (4.5 ± 2.5 vs. 2.5 ± 2.0, z = 4.79, P < 0.001), the Conduct problems scale (2.8 ± 1.3 vs. 1.8 ± 1.5, z = 4.51, P < 0.001) and for the Total Difficulties Score (13.3 ± 5.5 vs. 8.9 ± 4.5, z = 5.10, P < 0.001). The Prosocial behavior scale did not differentiate between adolescents with and without suicidal ideation (P = 0.558).

Table 2 shows that only the maternal-rated scores for the Hyperactivity/Inattention and the Total Difficulties Score discriminated between adolescents who had suicide attempts and those who did not: mean scores in the Hyperactivity scale and Total Difficulties Scores were higher for adolescents who attempted suicide than for those who did not (2.9 ± 2.2 vs. 2.3 ± 3.8, z = 1.98, P = 0.048; 10 ± 6 vs. 6.7 ± 5.5, z = 2.1, P = 0.036, respectively). The rest of the maternal-rated SDQ scales did not differ for adolescents who attempted suicide and those who did not.

Self-rated SDQ scores of adolescents were significantly higher in all problem scales for those who had suicidal attempts compared with those who did not (Peer relationship problems 3.5 ± 1.2 vs. 1.8 ± 1.4, z = 4.37, P < 0.001; Hyperactivity/Inattention: 4.8 ± 1.9 vs. 2.9 ± 2.1, z = 3.47, P < 0.001; Emotional problems 6.0 ± 2.1 vs. 2.5 ± 2.0, z = 5.04, P < 0.001; Conduct problems 3.3 ± 1.5 vs. 1.8 ± 1.5, z = 3.61, P < 0.001 and Total Difficulties Score: 17.6 ± 4.2 vs. 8.9 ± 4.5, z = 5.50, P < 0.001).

4. Discussion

This study demonstrated that mothers in the community are mostly unaware of the suicide ideation and attempts of their adolescents and hardly recognize their emotional and behavioral difficulties. Mothers of adolescents with suicide ideation were unable to identify their problems in any of the four problem scales measured by the SDQ: Peer-relationships, Hyperactivity/Inattention, Emotional problems and Conduct disorders. Mothers of adolescents who reported suicide attempts, however, did rate those adolescents as having more difficulties, but only in the Hyperactivity/Inattention scale and in the Total Difficulties Score, probably because of the externalizing aspects of this behavior. On the other hand, the adolescents themselves, both ideators and attempters, reported significantly more problems in all SDQ areas and the total scores were markedly elevated.

Table 1
Sociodemographic characteristics of the study population (raw numbers and weighted proportions).

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
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<tr>
<td>Males</td>
<td>463</td>
<td>50.3</td>
</tr>
<tr>
<td>Females</td>
<td>443</td>
<td>49.7</td>
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<tr>
<td>Population group</td>
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<td></td>
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<tr>
<td>Jewish</td>
<td>611</td>
<td>71.1</td>
</tr>
<tr>
<td>Muslim and Christian Arab</td>
<td>238</td>
<td>21.3</td>
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<tr>
<td>Druze</td>
<td>57</td>
<td>2.5</td>
</tr>
<tr>
<td>Country of birth</td>
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<td></td>
</tr>
<tr>
<td>Israel</td>
<td>783</td>
<td>81.4</td>
</tr>
<tr>
<td>Abroad</td>
<td>123</td>
<td>13.6</td>
</tr>
<tr>
<td>Maternal years of schooling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0–11</td>
<td>291</td>
<td>28.1</td>
</tr>
<tr>
<td>12</td>
<td>260</td>
<td>26.3</td>
</tr>
<tr>
<td>13 and over</td>
<td>300</td>
<td>30.3</td>
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<tr>
<td>Marital status of parents</td>
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<tr>
<td>Married</td>
<td>774</td>
<td>85.9</td>
</tr>
<tr>
<td>Single/divorced/widowed</td>
<td>110</td>
<td>14.1</td>
</tr>
<tr>
<td>Employment status of father</td>
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<td></td>
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<tr>
<td>Employed</td>
<td>624</td>
<td>76.7</td>
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<tr>
<td>Unemployed</td>
<td>204</td>
<td>23.2</td>
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<tr>
<td>Welfare services care</td>
<td></td>
<td></td>
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<tr>
<td>Present</td>
<td>124</td>
<td>13.7</td>
</tr>
<tr>
<td>Absent</td>
<td>754</td>
<td>86.3</td>
</tr>
<tr>
<td>Number of children in family</td>
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<td></td>
</tr>
<tr>
<td>1–2</td>
<td>156</td>
<td>22.0</td>
</tr>
<tr>
<td>3</td>
<td>212</td>
<td>25.4</td>
</tr>
<tr>
<td>4 or more</td>
<td>518</td>
<td>52.6</td>
</tr>
</tbody>
</table>

Table 2
Maternal-rated and self-rated SDQ scores by adolescent reported suicidal ideation and suicide attempts.

<table>
<thead>
<tr>
<th>SDQ maternal-rated scales</th>
<th>Adolescent suicide ideation</th>
<th>Adolescent attempted suicide</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes (n = 37)</td>
<td>No (n = 846)</td>
</tr>
<tr>
<td></td>
<td>x (sd)</td>
<td>x (sd)</td>
</tr>
<tr>
<td>Prosocial behavior</td>
<td>8.4 (2.0)</td>
<td>8.8 (3.5)</td>
</tr>
<tr>
<td>Peer relationship problems</td>
<td>1.7 (1.3)</td>
<td>1.8 (3.6)</td>
</tr>
<tr>
<td>Hyperactivity/Inattention</td>
<td>2.1 (2.1)</td>
<td>2.1 (3.9)</td>
</tr>
<tr>
<td>Emotional symptoms</td>
<td>1.9 (2.1)</td>
<td>1.8 (3.7)</td>
</tr>
<tr>
<td>Conduct problems</td>
<td>1.6 (1.3)</td>
<td>1.5 (3.6)</td>
</tr>
<tr>
<td>Total Difficulties Score</td>
<td>7.5 (4.7)</td>
<td>6.8 (5.6)</td>
</tr>
</tbody>
</table>

| SDQ self-rated scales | | | | | | |
|----------------------|-----------------------------|----------------------------|
|                      | Yes (n = 38)               | No (n = 866)               | Mann-Whitney U (z; df; P) | Yes (n = 15) | No (n = 888) | Mann-Whitney U (z; df; P) |
| Prosocial behavior   | 8.2 (1.5)                  | 8.3 (1.5)                  | z = 0.59; df = 1; P = 0.558 | 8.2 (1.5) | 8.3 (1.5) | z = 0.39; df = 1; P = 0.695 |
| Peer relationship problems | 2.6 (1.6)            | 1.8 (1.4)                  | z = 3.34; df = 1; P = 0.001 | 3.5 (1.2) | 1.8 (1.4) | z = 4.37; df = 1; P = 0.000 |
| Hyperactivity/Inattention | 3.5 (2.0)               | 2.9 (2.1)                  | z = 1.97; df = 1; P = 0.047 | 4.8 (1.9) | 2.9 (2.1) | z = 3.47; df = 1; P = 0.001 |
| Emotional symptoms    | 4.5 (2.6)                  | 2.5 (2.0)                  | z = 4.79; df = 1; P = 0.000 | 6.0 (2.1) | 2.5 (2.0) | z = 5.04; df = 1; P = 0.000 |
| Conduct problems      | 2.8 (1.3)                  | 1.8 (1.5)                  | z = 4.51; df = 1; P = 0.000 | 3.3 (1.5) | 1.8 (1.5) | z = 3.61; df = 1; P = 0.000 |
| Total Difficulties Score | 13.3 (5.5)              | 8.9 (4.5)                  | z = 5.10; df = 1; P = 0.000 | 17.6 (4.2) | 8.9 (4.5) | z = 5.50; df = 1; P = 0.000 |

SDQ: Strengths and Difficulties Questionnaire.

* P < 0.05.

** P < 0.001.

--- P < 0.001.

These considerable discrepancies between mothers and adolescents self-reports are within the low range of the existing data demonstrating poor parent-adolescent agreement in reporting suicidal behavior both in clinical [43] and community-based samples [4,40]. However, the importance of this study is that it demonstrates that mothers in the community have a markedly limited ability to assess their adolescents’ difficulties. This finding is consistent with a previous report of a large clinical sample, in which intact family structure, known to be less prevalent in clinical populations [21,35], was not associated with greater parent-adolescent agreement [25].

Possible explanations for the underreporting of mothers are lack of awareness, parental denial, absence or differing interpretation of events [43]. Decreased parental awareness may reflect low levels of family support, that had been associated with higher rates of suicidal behavior [23] or low parental bonding [12]. Thus, the combination of all these factors may leave the suicidal adolescent at even greater risk for a future suicidal attempt [25].

Of note, in the present study, the ability of mothers of adolescent suicide ideators to recognize their adolescents’ problems was absent for both externalizing disorders (reflected in the Hyperactivity/inattention and Conduct disorders scales) and internalizing disorders (reflected in the Emotional problems and Peer relationship scales). For the latter, it has been established long ago that parents generally report fewer internalizing symptoms than their children [3]. However, for externalizing disorders, many reports were to the contrary [7].

Our results suggest that in the psychiatric evaluation process of an adolescent, information concerning his difficulties as well as suicidality must first and foremost be collected from the adolescent himself. Parent reports are most certainly to be taken into consideration, but should be regarded with due caution and not be used as the sole source of information. More specifically, information provided by the parents denying any difficulties cannot be considered sufficient to exclude the adolescent’s serious mental distress and suicidality.

The findings of the present study are essential for mental health services planning of national suicide prevention programs. Some of these programs are based on screening school population for mental disorders and different types of suicidal behavior [41], while others focus on gatekeepers’ (such as parents or teachers) reports of adolescent distress and suicidality [19]. The poor mother-adolescent agreement demonstrated here may indicate that at least some gatekeepers would have significant difficulty in recognizing the adolescent’s emotional and behavioral problems and thus may fail to identify the adolescents at risk for suicide. However, future research is needed to determine whether the findings concerning parents are generalizable to other gatekeepers.

Screening-based suicide prevention programs in the general community may find the adolescents self-rated version of SDQ useful in detection of suicidal adolescents, while the maternal-rated version would probably be less favorable for this purpose. Out of the five SDQ scales, the Prosocial behavior scale seems to be the least sensitive to identifying suicidal adolescents. To the best of our knowledge, this is the first nationally-representative sample assessment by the SDQ and further studies are warranted to evaluate parent-adolescent agreement in other countries and determine its role in the screening for adolescent mental health disorders and suicide prevention.

Limitations: Although this study comprehended a representative sample of Israeli youth, two subpopulations were not included: the Jewish Ultra-Orthodox and Palestinian adolescent residents of East Jerusalem. They comprise 17.8% and 2.8% of the adolescents in this age group, respectively [27]. After the feasibility stage showed that very few of the Jewish Ultra-Orthodox and Palestinian residents of East Jerusalem would be willing to participate, it was decided not to include these populations in the study. The Ultra-Orthodox Jewish population follows the most conservative form of Orthodox Judaism and is unwilling to participate in projects containing a secular content. Regarding the Palestinian residents of East Jerusalem, their willingness to participate in a survey organized and carried out by the Ministry of Health, an official Israeli institution, was low presumably due to their lack of confidence and trust in the use of the data.

Another possible limitation is the 20% non-response rate. This non-responsive and less cooperative population may have different rates of psychiatric disorders and different rates of mothers’ report on the adolescent problems than the respondents.

Despite these limitations, prevalence rates of psychopathology reported in the ISMEHA Study [10,29] are in line with epidemiological surveys carried out worldwide and that strengthens the likelihood that the findings regarding mothers and adolescents reports of difficulties and suicidality may be generalized [31,32].

5. Conclusion

We demonstrated for the first time that in a well-characterized community representative sample, the adolescents were more reliable informants than their mothers not only of their suicidal behavior, as suggested in the past [26], but also of their difficulties (both internalizing and externalizing). Their mothers were found to have poor ability to identify the distress of their adolescents in the areas measured by the SDQ, except for the hyperactivity/inattention area in the group of suicide attempters.

The implications of these findings are relevant to clinical practice: The mental examination of the adolescent patient should be maintained as the central and most reliable source of information. In adolescents with low self-disclosure, the psychiatrist may tend to rely more on parental reports, ignoring the fact that in many cases they are more prone to be inaccurate and that inability to communicate feelings and thoughts is in itself a risk factor for suicidal behavior during adolescence [17].

In addition, the caretaker’s role should be clear to address parent-biased perceptions of the suicidal adolescent during therapy. Such misperceptions and misinterpretations may be related to the adolescent’s developmental conflicts of individuation and autonomy [5] or to parent-adolescent miscommunication [18].

Other implications of the findings relate to the contemplation of future suicide prevention programs as discussed above. Early detection of difficulties may be life-saving because adolescents may conceal both their emotional and functional problems and their suicidal ideations and attempts.

Disclosure of interest

The authors declare that they have no conflicts of interest concerning this article.

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References


