

# Peer support and metabolic control in adolescence

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## ARTICLE POINTS

- 1 There has been little research on peer support in adolescents.
- 2 A semi-structured interview was used to provide quantitative and qualitative data.
- 3 Results indicate peers are a key provider of emotional support.
- 4 Peer support is associated with better metabolic control.
- 5 Social support is more important for those on intensive insulin regimens.

## KEY WORDS

- Peer support
- Diabetes self-management
- Insulin regimen
- Metabolic control

## Introduction

**Success in diabetes self-management in adolescents is not purely a function of their prescribed insulin regimen. This study was carried out to investigate the role of peers in supporting adolescents' diabetes management. Semi-structured interviews were used to assess peer support, and glycated haemoglobin results were taken from the medical records. The results indicate that peers may play a vital role in supporting adolescents on intensive insulin regimens.**

Since publication of the Diabetes Control and Complications Trial (DCCT) (Diabetes Control and Complications Research Group, 1994) results, it has been widely accepted that improving metabolic control must be of fundamental priority in type 1 diabetes care. There remains the question as to whether the success of the DCCT in improving patients' metabolic control was due to the intensive insulin regimen or the intensive psychosocial support provided by the DCCT care teams. There is as yet no research to answer this question but the ability of one diabetes care team to achieve a mean HbA<sub>1c</sub> of  $6.6 \pm 1.2\%$  in an unselected sample of 144 children and adolescents, using primarily two injections a day (Dorchy et al, 1997), suggests that intensive insulin regimens per se are not the only way for improving control in adolescents with diabetes.

Within this context, psychosocial research that attempts to predict and improve diabetes self-care is becoming increasingly important. Although there has been a wealth of psychosocial research on adolescents with diabetes, to date the vast majority of this research has focused on the relationship between adolescents and their families. A relatively consistent finding is that adolescents from more supportive and cohesive families have better metabolic control and adherence (Burroughs et al, 1997).

However, a recent review of research on paediatric chronic illness (Glasgow

and Anderson, 1995) recommended 'that greater attention be paid to the social context' in which the adolescent lives. In particular, a paucity of research on the role and influence of the adolescent's peer group has been noted (La Greca, 1990; La Greca, 1992). Adolescents with diabetes report a large number of social barriers for daily management tasks (Schlundt et al, 1994) and that having diabetes made it difficult to be spontaneous and socially acceptable (Meldman, 1987). It has been shown that peers and friends are a major source of emotional support (by helping the individual to feel accepted and showing sensitivity to their needs), more so than the family, and that this support is related to the adolescent's health behaviour (La Greca et al, 1995) (Figure 1).

A potentially important factor is the possibility of interaction between treatment regimen and psychosocial factors. The social impact of managing diabetes on a rather inflexible two injection regimen could be expected to be markedly different from that of an intensive four injections a day regimen. Therefore, this study set out to examine the possibility of an interaction between treatment regimen and peer support in relation to adolescents' control of their diabetes.

## Method

### Participants

All young people between 12-18 years old with type 1 diabetes mellitus, with no

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- 1 The age range of the adolescents in the study was 12 to 16.
- 2 Semi-structured interviews were used.
- 3 Participants were on a mixture of insulin regimens.
- 4 Details of metabolic control were taken from medical records.

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Figure 1. Peers and friends can be a major source of emotional support.

other diagnosed disorders, who had been diagnosed for at least six months were considered eligible for the study. A total of 51 prospective participants were approached, of whom 27 agreed to participate in the study, giving a response rate of 53%. The participants were all Caucasian. A summary of the sample demographics is shown in Table 1.

**Measures**

Social support was assessed using the Diabetes Social Support Interview (DSSI) (La Greca et al, 1995). As this study was only examining the influence of friends and peers, the section on family support was discarded. The interview commenced with questions of the general form 'In what ways do your friends help you or provide support for...', pertaining, in particular, to four diabetes care tasks (insulin injections, glucose testing, sticking to a meal plan or diet and exercising regularly). A fifth question concerned diabetes-specific emotional support received from family members: 'In what ways do your friends help you to feel good about your diabetes?' The interviewees were then asked if there was anything else they could think of. After all the initial questions had been asked, the interviewer reviewed the interviewee's responses and asked him/her how often each behaviour occurred (score range 1-5) and how supportive it was (score range 1-3). The frequency and supportiveness score for each

**Table 1. Sample demographics**

VARIABLE	
Female	56%
Age	15.8 (1.6)*
Duration	6.2 (5.1)*
Regimen (injections a day)	
Two	31%
Three	11%
Four	58%
<b>Parental Occupation**</b>	
Professional	31%
Intermediate	25%
Skilled non-manual	20%
Skilled manual	17%
Semi skilled	none
Unskilled	7%

\*Mean (standard deviation)  
 \*\*Occupation status of higher status parent based on DOE (1980) classification

response were then multiplied to generate a support score. For this part of the interview participants were given a sheet containing the various response options.

Participants' responses were coded in accordance with the DSSI coding manual into four categories:

- Tangible support (i.e. providing services or resources necessary for diabetes management)
- Emotional support (i.e. behaviours that help the person feel good, that are esteem-enhancing)

**PAGE POINTS**

1 Greater social support was associated with better metabolic control.

2 Support for injections and diet was most frequently reported.

3 Emotional and tangible support was most valued.

4 Support was more important for those on more intensive regimens.

- Companionship support (i.e. behaviours that reflect shared activities)
- Informational support (i.e. giving advice or information).

Metabolic control was assessed using glycated haemoglobin assays, routinely taken as part of the patients' diabetes care. The hospital changed its assay procedure during the course of the study, so the assay results were converted into z scores (the number of standard deviations above the normal population mean) to enable merging of data across different assaying procedures.

**Procedure**

Letters were sent to prospective participants, and the parents of those under the age of 16. At the end of the letter, they were asked to reply using the return slip and stamped addressed envelope provided, if they were willing to participate in the study. At the outpatient clinic, the nurse specialist introduced the participants to the interviewer, who then conducted the interview in a consultation room. Participants were reminded that

they did not have to answer any questions and that they may not be able to think of a response to some questions. If this was the case participants were encouraged to say so, as this was just as important as having something to say. Date of birth, date of diagnosis and latest glycated haemoglobin results were collected from medical records.

**Results**

**Support provisions**

Participants reported significantly more support for dietary self-care and insulin injections than for exercise or blood glucose monitoring ( $2.46 < t < 2.92$ ;  $df = 25$ ;  $P < 0.05$ ) (Figure 2). Adolescents who were on four injections a day reported significantly more support for insulin administration than those on three injections, who reported significantly more support than those on two injections a day (Krusk-Wallis;  $\chi^2 = 5.01$ ;  $df = 2$ ;  $P < 0.05$ ).

Peers and friends provide little informational support. However, although companionship support is reported as often as tangible and emotional support, this is seen as much less supportive (Table 2;  $5.67 < t < 7.29$ ;  $df = 25$ ;  $P < 0.005$ ). Although there is little difference between frequency of reporting for tangible and emotional support (Table 2), emotional support was reported as significantly more important than tangible support ( $t = -2.44$ ;  $df = 25$ ;  $P < 0.05$ ).

**Metabolic Control**

Neither gender, age nor socio-economic status was associated with metabolic control. However, there was a trend for participants with longer duration of diabetes to have poorer diabetes control and to be taking more injections a day. Participants on two injections a day were on average in poorer metabolic control than participants on four injections a day ( $t = -2.09$ ;  $df = 23$ ;  $P < 0.05$ ). However, there was substantial overlap in the distributions of metabolic control for the different regimens (Figure 3).

Using glycated haemoglobin z scores as the dependent variable, a regression analysis was conducted. This analysis indicated that injection regimen ( $\beta = 0.71$ ;  $t = 3.96$ ;  $P < 0.001$ ) and the support insulin regimen interaction ( $\beta = -0.58$ ;  $t = -3.24$ ;  $P < 0.005$ )

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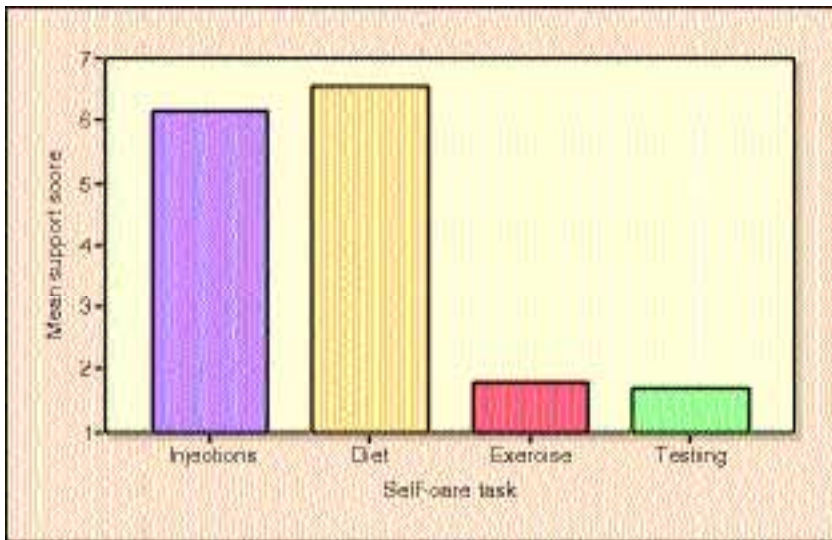


Figure 2. Mean support score for different self-care tasks.

Table 2. Mean score and frequency of reporting types of support

Type of support	Frequency of reporting sum (mean)	Score mean (sd)
Emotional	49 (1.8)	16.3 (11.1)
Tangible	48 (1.8)	10.4 (8.3)
Companionship	42 (1.6)	1.8 (3.9)
Informational	2 (0.1)	0.7 (2.9)

together accounted for 37% of the variance in participants' metabolic control ( $F=8.9$ ;  $P<0.002$ ). This interaction has been plotted in Figure 4. This indicates that for those on two injections a day there is no association between support and metabolic control ( $r=-0.14$ ;  $P>0.7$ ). For those on four injections a day there is a strong association between support and metabolic control ( $r=-0.71$ ;  $P<0.005$ ).

**Discussion**

This study has yielded three key findings. First, in line with the DCCT results, those on the more intensive and flexible four-injection regimen, had on average better control of their diabetes. However, some participants on two injections a day controlled their diabetes as well as some participants on four injections a day. Second, peers were providers of predominantly emotional support, replicating the results of previous work in this area (La Greca et al, 1995). However, the key result of this study is the interaction between support, injection regimen and metabolic control. For those on two injections a day, the supportive behaviours of peers seemed unrelated to the adolescent's control of their diabetes. In comparison, for those on more intensive insulin regimens, the support provided by the adolescent's friends, seemed to be closely related to their control of diabetes.

There are a number of theoretically plausible explanations for these results. However, based on existing research (Grey et al, 1998; Schlundt et al, 1994; Skinner et al, 1999; Meldman, 1987) and follow-up interviews, these results point to the importance of social support for those on four injections a day. More intensive insulin regimens mean taking at least one injection a day at school or when out with friends during the day. This means that diabetes is impacting on the social life of the adolescent much more than for those on only two injections a day. The response of some adolescents testified to this quite aptly when they described being called 'druggie' or the like by other adolescents. Many of them felt uncomfortable injecting in public, and were even asked by close friends to inject outside the tent while on

a camping trip. Further evidence for this is provided by the fact that participants on more intensive regimens reported more support for their injections. Add to this the extra demands for monitoring and balancing the different components of treatment on more intensive regimens, and it is clear that peers who are supportive and accepting are essential if diabetes is to be managed successfully on more intensive regimens.

Another approach to successful diabetes management in young people would be to equip them with the necessary coping skills to deal with the social pressures of intensive insulin regimens. Grey and colleagues (Grey et al, 1998) reported the result of a trial of coping skills training as an adjunct to intensive management. As adolescents moved on to intensive insulin

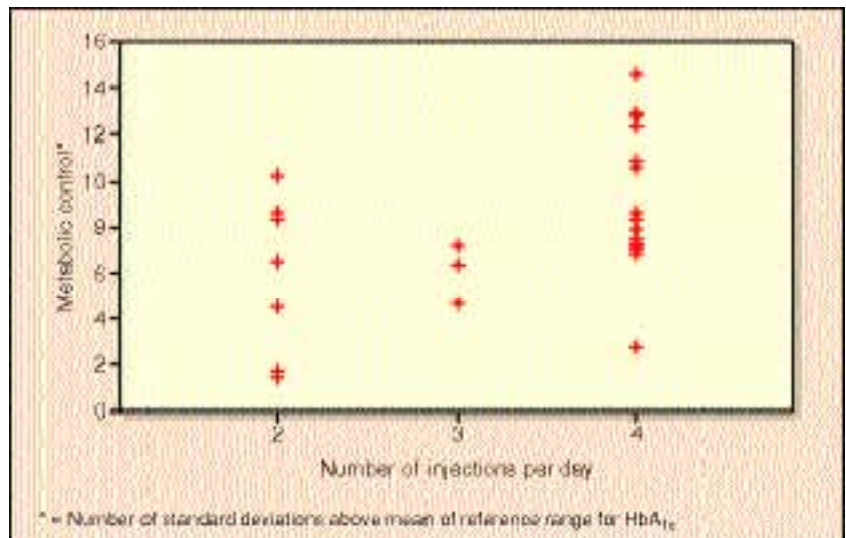


Figure 3. Metabolic control by injection regimen

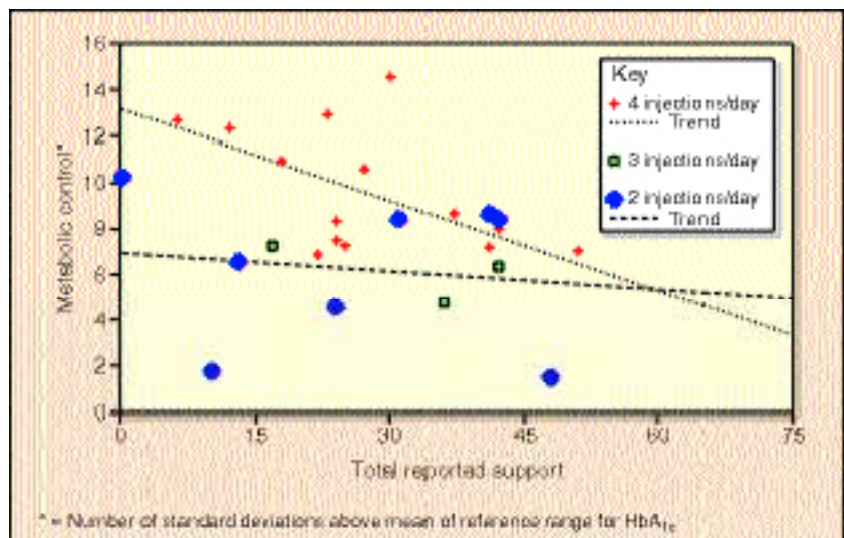


Figure 4. Support and regimen in relation to metabolic control

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## PAGE POINTS

**1** Limitations of the study include the small sample size, that variables were not included, and that it was conducted in a single centre.

**2** Future research in this area is needed.

**3** It is essential that the patient's wider social context is considered.

**4** If the adolescent does not receive support from peers, metabolic control and quality of life are adversely affected.

management they were randomly allocated to normal care or normal care plus a brief coping skills training programme. This programme consisted of sessions, each lasting 1-1.5 hours and involving two to three adolescents. The number of sessions varied from four to eight, depending on the competency of the adolescents. The sessions involved eliciting potential barriers to successful management. Structured problem solving was then used to identify potential approaches to these problems. Selected strategies were then rehearsed within the group. Compared with those who received normal care, those who also received the coping skills training had significantly lower HbA<sub>1c</sub> at the 6-month follow-up (7.8% vs 8.3%). This difference was also maintained at the 1-year follow-up.

### Limitations to the study

It should be remembered that there are three key problems with the study described in this article. The sample size severely limits the degree of analysis, size of subgroups and robustness of the results and their interpretation. This study has failed to include a vast array of variables which mediate, moderate or nullify the impact of peer support. Thirdly, this study was conducted with only one diabetes care team. Treatment decisions, patient skills and knowledge, illness beliefs and self-management behaviours, are a function of the individual, their social world and the diabetes care they receive. Therefore, the possibility that this result is a unique function of the care delivered by this team cannot be ruled out.

### Conclusion

Despite the limitations, this study should be considered an important pilot study indicating a need for future research in this area. Data from this and numerous other more recent studies point to one clear conclusion: intensive management alone is not the panacea that will result in good control of diabetes for all adolescents. When making treatment decisions, especially about intensifying treatment regimens, it is imperative that the diabetes care team consider the individual and his/her wider social context. If the adolescent's peer group does not accept

him/her or provide support for his/her diabetes management, life becomes even harder. This results in one of two outcomes: diabetes management suffers or social life becomes more stressed. Either way, metabolic control and quality of life are adversely affected. ■

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