Outlook on relations: Personal networks and psychosocial characteristics of visually impaired adolescents
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Conclusions & discussion

Introduction

In this final chapter the three central research questions of Chapter 1 are answered. These questions are:

a What are the structural and functional aspects of the personal networks of blind and visually impaired adolescents, compared with those of sighted adolescents?

b What is the psychosocial development - as measured by psychosocial characteristics, well-being and loneliness - of blind and visually impaired adolescents, compared with that of sighted adolescents?

c What is the association between on the one hand several aspects of the personal network and on the other hand psychosocial characteristics, well-being and loneliness of blind and visually impaired adolescents, compared with that of sighted adolescents?

Personal network results (research question a), for both structural and functional network aspects, are presented in section 8.1. The results concerning psychosocial characteristics, well-being, and loneliness (research question b) are dealt with in section 8.2. The third research question (c), regarding the associations between network aspects and psychosocial functioning, is answered
in section 8.3. Critical remarks about this study and its results are made in the discussion (8.4). The final section (8.5) contains recommendations based on our research results.

8.1 Personal network

As mentioned above, in the first section of this final chapter, research question a is answered, i.e.:

a What are the structural and functional aspects of the personal networks of blind and visually impaired adolescents, compared with those of sighted adolescents?

Firstly, conclusions with regard to structural and functional aspects of the personal networks of our participants - blind and visually impaired adolescents - are introduced (8.1.1). In 8.1.2 these results are compared with other research results mentioned in the literature.

8.1.1 Visually impaired adolescents

Size
Two basic structural network aspects are included in our study: size and composition of the personal network of blind and visually impaired adolescents. Network size was measured by counting all the names of listed persons in eight sectors of the network: close family, extended family, friends (including romantic partner), class members and colleagues, club members, neighbors, professional caretakers, and members of the living group. A person could be listed in one sector only.

The average size of the personal network of the interviewed adolescents was 15 persons. The smallest network consisted of two persons, the largest of 49 persons. From the sample 41% had a small network, defined as a network consisting of fewer than 12 persons.

Which background characteristics influence the size of a personal network (i.e. the number of important persons) of an adolescent who is blind or visually impaired? In general the adolescents differ not very much in the number of listed persons, so the influence of characteristics, if any, is small. Of the twelve characteristics, which are divided into socio-demographic, vision-related and context characteristics, only two significantly predict network size: i.e. the kind of visual problem (progressive or stable) and the age of the participant. Participants who were young (i.e. between 14 and 18 years of age) and those who had a stable disorder had a smaller network.

Composition
The largest sectors in the network of blind and visually impaired adolescents were friends, close family members and extended family members. One third of the participants listed no siblings although they did have brothers or sisters.
The networks were characterized by a mean percentage of 5% of professionals. On average, 10% of our participants' network members were visually impaired; these were mainly peers. Many of the friends of visually impaired adolescents were older than the adolescent in question.

Strong predictors for the composition variables were living situation, sex, degree of visual impairment, kind of impairment, and age. The composition of the network of the following participants was slightly problematic: males, the blind adolescents, younger adolescents, those with a stable disorder, and those living with their parents. However, the differences between groups were small.

**Support**

Parents and peers were significantly the most important sources for giving practical and emotional social support to blind and visually impaired adolescents. Formal network members were in general more important as sources of support than were siblings or extended family members.

Several background characteristics predicted social support: the strongest of these were sex and living situation. Females perceived more support from almost all support provider systems. Adolescents living independently perceived less support. In general, perceiving less social support might be a less positive situation.

**Reciprocity**

Most participants experienced a non-reciprocal relationship, indicating that they received more support than they gave themselves. Most reciprocal relationships were experienced with peers and siblings. The degree of reciprocity with all five support provider systems significantly differed from each other. Regression results showed that participants who lived with their parents experienced the most non-reciprocal relationships. Compared with blind and severely visually impaired adolescents, moderately visually impaired adolescents had more reciprocal relationships.

**Satisfaction**

A large majority of the visually impaired adolescents were satisfied with the perceived social support; only 2% were 'not so satisfied'. These were mainly the males and the participants who did not go to school and had no job. Less positive were the results concerning the satisfaction with size and composition of the network. A quarter of the interviewed adolescents wanted a larger network of supporting persons, and especially with regard to the number of sighted peers. When asked if participants wanted to enlarge their network with more persons with whom they could undertake social activities, 60% said yes. Again they wanted more joint leisure activities with peers. Forty percent of the blind and visually impaired wanted to change existing relationships, especially with sighted persons at school or work.

In sum, blind and visually impaired adolescents proved to have a reasonably varied and supportive personal network. This kind of network could be
important for its positive impact on development and prevention of psychosocial problems. The results showed that some groups were more at risk in this regard, i.e. males, young adolescents, and adolescents with a stable disorder.

8.1.2 Comparison of results

Size
The size of the network of visually impaired adolescents (mean: 15 persons) was significantly smaller compared with non-impaired adolescents of a reference project (mean: 20 persons). On top of this, the occurrence of small networks was also higher in the group visually impaired adolescents than in the group sighted adolescents. Based on other research results and experiences of parents and professional careworkers, this result was expected. Persons who are blind or visually impaired experience to some degree dependency as regards mobility and some problems in nonverbal communication. These two aspects may affect social contacts with other persons. A third aspect is some kind of stigmatization or prejudice, although in the 1990s in Western countries this is less the case than it was decades ago. Another explanation might be that blind and visually impaired adolescents experience more difficulties in maintaining relationships, or that maintaining and investing in relationships takes more energy or effort. With regard to the size of the network for receiving support our participants were satisfied, whereas they did want to enlarge their social leisure activities with, especially, sighted peers.

Our results partly confirm those of Finnish research [(Huurre & Aro, 1998), which found that the average size of the network of visually impaired adolescents was slightly smaller than that of adolescents without impairment, but the difference did not reach statistical significance.

Weiner (1991) studied the personal networks of blind and visually impaired American adults. The listing of network members was fixed at a maximum of 35 members. His results showed that the smallest network consists of four persons and the largest of only 16 persons. The average network size for blind and visually impaired adults was ten persons (s.d.3). A small network, i.e. fewer than 12 persons, was found for 78% of the participants. He concluded that the network size was slightly smaller than the networks of east Yorkers and northern Californians. In his study, females and blind participants had the largest network. In our study we found no effects of severity of the impairment.

Based on some theoretical assumptions of Tijhuis (1994, see section 2.2.2) we expected a smaller network in the visually impaired group compared with non-impaired adolescents. An impairment may limit the opportunities for new contacts. The social resources of visually impaired adolescents may also be limited, so other persons appeal less to those resources. Due to the social regulation process - not conforming to the norms of people around you (for example, in a school) which may be considered as a way to disinvest in personal relations and could lead to disinvestment by others - the chance that impaired persons would have a smaller network could be predicted. Our results also
confirm results mentioned by Lyons et al. (1995), which described reduced network size of ill and impaired persons. That the network of blind and visually impaired participants was smaller than the network of healthy persons was also comparable to that of Janssen (1992). She demonstrated that the networks of chronic patients were smaller than those of healthy persons. However, the structure of a network is one thing, the quality is another. The functional aspects give more insight in that regard (see 8.1.2). A small network might function well and be of good quality. Research showed (Tijhuis, 1994) that a small network of people who are ill may provide individuals with more support than a larger network of non-impaired persons.

It is commonly known that females are more relation-focused compared with males. Buysse found larger networks for girls than for boys (Buysse, 1997). This proved also to be the case with blind and visually impaired adolescents. General literature concerning changes in networks during the adolescent period states that the circles of social contacts expand. In our study we also found that older visually impaired adolescents had a larger network than younger adolescents. Buysse (1997) found no effects of age on the network size of non-impaired adolescents.

In addition to our study on the personal networks of blind and visually impaired adolescents, studies have been carried out on the personal networks of adolescents with a physical impairment (Van Gulick & Klaver, 1998) and the personal networks of visually and cognitively impaired adults (Maat, Schotanus & Wildenberg, 1998). The adolescents (N=43) with a physical disability (such as cerebral palsy, spina bifida or muscle disorders) listed on average 15 persons in their network (s.d.=8). This network was also significantly smaller than that of non-impaired adolescents, but was similar to the size of networks of visually impaired adolescents. Their, on average, small network ranged from 4 to 34 persons (Van Gulick & Klaver, 1998).

The network of adults - aged between 18 and 32 - with a visually and cognitively impairment was larger: it consisted on average of 22 persons (s.d.=8). All these adults lived in accommodation belonging to an institute. Two aspects may have been responsible for the larger network of this group: their living situation or the cognitive ability to decide which persons are important (Maat, Schotanus & Wildenberg, 1998).

The size of the personal network of adolescents with behavior problems was also significantly smaller compared with 'normal' adolescents (Buysse, 1997), as was the network of homeless adolescents (Tavecchio & Thomeer-Bouwen, 1996). The mean sizes of these groups of adolescents was also 15 persons, so the network size of blind and visually impaired adolescents was similar.

Composition
Compared with sighted adolescents from the reference project of Leiden University, blind and visually impaired adolescents listed fewer friends, extended family members and neighbors, resulting in a significantly smaller network. The results of the visually impaired group showed more similarity
with adolescents with behavior problems (Buysse, 1997) than with sighted adolescents. Especially the social contacts of visually impaired adolescents with (sighted) peers is viewed as critical. Contacts with peers are essential in order to gain support and feelings of belonging, with positive effects on the psychosocial development. Our participants stated that they want more contacts and joint activities with peers. The fact that some activities can not be shared, such as driving scooters or exchanging nonverbal signals, possibly has a greater impact on contacts with peers than on contacts with other network members.

The network composition results of visually impaired American adults in the study of Weiner (1991) are quite comparable with the composition results of blind and visually impaired Dutch adolescents. Here, too, the largest category of network links was the category friends: 22% of the total number of network members identified by all Weiner’s subjects were friends. The next largest categories were close family and extended family members. The mean percentage of kin members was 62%. So, family members actually dominated the networks of the blind and visually impaired adults in the U.S.A., which is not the case in our study. The mean percentage of blind and visually impaired network members as listed in the American study (Weiner, 1991), was 7%; in our study it was 10%.

Huurre, Komulainen and Aro (1996) and Huurre and Aro (1998) found that the average composition of networks of Finnish adolescents with a visual impairment and that of a comparison group of sighted adolescents was quite similar. However, visually impaired adolescents less often had many friends as found in our study, and they had less often dating experiences than sighted adolescents. They also reported more often difficulties in making friends than their sighted peers.

A Dutch study into dating, sexuality and friendships of blind adolescents (N=38) indicated that they experience specific problems in these domains, too (Sloep & Reek, 1998). A small group of their blind participants (18%) never took the initiative in a romantic contact, and these adolescents also experienced more problems as regards self-esteem and loneliness. The participants who did have sexual experience also reported more friends and a larger network.

The findings of Rosenblum (1997, 1998) that visually impaired girls had more best friends than the boys were confirmed by our study. Sighted female adolescents also listed more friends than males listed (Buysse, 1997). The sighted adolescents in the study of Rosenblum (1998) had more friends than visually impaired adolescents had. In contrast, whereas she found that the visually impaired adolescents were older than their best friends, we found the opposite. One third of the best friends of visually impaired American adolescents also had some disability. In our study, 25% of the friends were blind or visually impaired, too. Interesting was her finding concerning the only small negative impact of not sharing certain activities with your best friend. Although the existing relationship is perhaps not influenced by this factor, it may have more impact on starting a friendship (Sloep and Reek, 1998).
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Lyons et al. (1995) stated that the networks of sick or impaired persons have a different composition: a higher percentage of kin members, including more impaired or sick persons, and a lower number of friends. The latter is confirmed by our study, whereas the former - the percentage of kin - is not. Eiser (1994) also emphasized the importance of contacts with peers who have similar diseases or handicaps; these contacts provide a model of appropriate coping behavior. The blind or visually impaired members in the network of our participants were mostly peers, too.

Van der Pluijm and Van Dongen (1994) studied, among other things, the friendships of visually impaired students at a school for visually impaired persons in the Netherlands. They found that 38% had only blind or visually impaired friends. In our more extended, national study - which included students who had never attended special education - this percentage was 11%.

The results of a German study into the friendships of visually impaired adolescents (Walther, 1994) showed that a quite alarming 18% listed no friends at all. In our study this percentage was 8%, compared with 3% in a reference group with sighted adolescents (Buysse, 1997).

The composition of the personal network of visually and cognitively impaired young adults, proved to be slightly different compared with our results (Maat, Schotanus & Wildenberg, 1998). Compared with our participants, their participants listed fewer friends and close family members, and more living group members and professionals. The sector professionals is one of the largest sectors in the network of visually and cognitively impaired adults.

The composition of the network of Dutch adolescents with a physical impairment is very similar to that of blind and visually impaired adolescents (Van Gulick & Klaver, 1998). This composition therefore differed in the same way from that of non-impaired adolescents as described for our visually impaired participants.

Support

Visually impaired adolescents did not perceive more social support than sighted adolescents. Instead, they did perceive less social support from their network members, however not from peers. The amount of support from peers perceived by the two groups was similar. A strong need for independence, which is characteristic of all adolescents, might play a part in this result. A balance of experiences with social support and autonomy is crucial for healthy social-emotional functioning (Bryant, 1989). A complementary study into the rearing situation of some of our participants (Wesselink, 1996) found that visually impaired adolescents perceived their parents as controlling and supportive. Their parents stimulated them to be independent and conscious about which choices to make. Nevertheless, since high levels of support in general are related to a more positive development, this lower support score we found might be a vulnerable situation, too. The equal amount of support that visually impaired and sighted adolescents receive from peers demonstrates that visually
impaired adolescents attach high importance to contacts and support exchange with their peers.

The most important sources of support for both groups of adolescents were parents and peers. A comparison of the separate support scores of individual network members suggests that fathers were less important as a source of support for visually impaired adolescents than they were for sighted adolescents. Research on rearing styles of the parents of our participants (Udema, 1996) demonstrated that mothers were more open to emotions than fathers were. This result might help explain our finding. Fathers of children with physical impairments have more difficulty in accepting their child's impairment and suffered more from family stress than mothers (De Boer & Loves, 1996). The separate support scores of teachers seemed to show that their role is more important for visually impaired adolescents than for sighted adolescents. For adolescents in residential care, the teacher was also more important as a source of social support compared with adolescents in a reference sample (Buysse, 1997). The conclusion of Buysse (1997) that teachers when mentioned as important network members become important sources of support when adolescents experience problems is therefore confirmed by our study.

Buysse (1997) found that sighted girls perceived more support from peers than sighted boys did. She found no effects of age. Our study confirmed this sex difference, and also found no effects of age on support.

The comparison with results of adolescents of the Utrecht reference project provided similar results. The social support of all three provider systems (parents, siblings, and peers) and the total support score was lower for visually impaired adolescents than for sighted adolescents.

The findings of a Finnish study (Huurre, Komulainen & Aro, 1999) showed that parents seemed to be slightly more supportive than friends. They found no difference in the amount of parental support between visually impaired adolescents and sighted adolescents. With regard to support of friends, visually impaired girls perceived less peer support than sighted girls, whereas they found no differences for boys on this subject.

An American study on the support networks of blind and visually impaired adults (Weiner, 1991) demonstrated that these adults were very dependent on support from family members. In our study, the results indicated that peers were very important for providing support; however, our participants were adolescents rather than adults.

Studies concerning the support of sighted adolescents demonstrated that girls experienced more support than boys (Meeus, 1989), as was confirmed by our study. They also found an effect of age on parental support. The importance of parental support recedes in the course of adolescence. Between the ages of 16 and 18, peer influence became equal to that of parents (Meeus, 1994). We, however, found no effect of age on parental support, indicating that for visually impaired adolescents aged 14 through 24, parents are one of the most important sources of support. Nor did we find any effect of age on peer support.
The importance of parents and peers for the provision of support is nearly equal for all of our participants.

Scholte (1998) studied the perceived relational support of Dutch adolescents provided by four providers: father, mother, special siblings, and best friends. He demonstrated that friends were not more important than parents in this regard. The perception of support remained relatively unchanged across development, he found only one effect of age: older adolescents perceived less parental support than younger adolescents. We found no age effects on support in our study with visually impaired adolescents. An interesting and promising approach in his research was the identification of subgroups or types of adolescents with a specific pattern of support (see 2.3.2). This pattern of support caused differences in the way they were related to adjustment (see 8.3). Although we did not analyze our support data this way, it is to be recommended for future research.

Another interesting aspect in his study was the inclusion of best friends; he did this in order to determine their view of the peer-support relationship. Scholte (1998) concluded that a relationship between two friends can have a different meaning for each of the participants and can be supportive in a different way.

The importance of peer support and support of formal network members was demonstrated for adolescents with behavior problems in residential care (Buysse, 1997). Our results also indicated the importance of these two provider systems. The total support score did not differ between adolescents in residential care and 'normal' adolescents (Buysse, 1997). However, Tavecchio and Thomeer-Bouwens (1996) did find differences: homeless adolescents and adolescents with behavior problems living in a residential institute perceived less relational support from parents and peers than 'normal' adolescents. Adolescents in residential care perceived more relational support from their parents than homeless adolescents did; this difference was not found for the relational support from peers.

Adolescents with a physical impairment seemed to perceive less total support from all their network members than visually impaired adolescents and sighted adolescents did, although the difference was small. Nevertheless, the physically impaired adolescents were satisfied with the support and the size of their supporting network (Van Gulick & Klaver, 1998). Their participants perceived more parental support than peer support, while in our study these two provider systems were more similar in providing support.

Formal network members proved to be more important sources for social support than parents and peers for young adults with a visual and cognitive impairment (Maat, Schotanus & Wildenberg, 1998). Their participants were more dependent on professionals in this regard than visually impaired or physically impaired adolescents were.
Reciprocity

Blind and visually impaired adolescents experienced the same degree of reciprocal relationships with their network members that non-impaired adolescents experienced. The reciprocity scores of all five support provider systems did not differ from those of sighted adolescents. Adolescents have a preference for equal sharing in their relationships, especially with friends (Berndt, 1989), and this seemed to apply to our visually impaired participants, too. Adolescents with behavior problems tended to have more non-reciprocal relationships than 'normal' adolescents had (Buysse, 1997). She found no effects of sex or age on reciprocity, which was confirmed by our study.

Reciprocity in support exchanging relationships was also included in the study with physically impaired adolescents (Van Gulick & Klaver, 1998). They found no significant differences concerning reciprocity for the total network between their group, visually impaired adolescents and sighted adolescents. However, the kind of physical impairment and the time of onset did influence the reciprocity. In our study, these factors did not influence reciprocity.

Satisfaction

As the reference project of Leiden University did not include this aspect, we could not compare our results in this regard with those of sighted adolescents. No other research results were found concerning the satisfaction with support of visually impaired or sighted adolescents. One descriptive article emphasized that visually impaired adolescents wanted to change the relationships they had with their class mates and teachers (Brandenburg & Van Gelder, 1994). Our participants also stated that they were less satisfied with their relations with persons at school.

Research on the satisfaction with network aspects of visually and cognitively impaired young adults (Maat, Schotanus & Wildenberg, 1998) demonstrated that these adults were less satisfied with the support than our visually impaired adolescents were. In their group, 59% were not satisfied, compared with 2% in our group. In both groups, the males were less satisfied than the females were. As regards satisfaction with the network size for undertaking leisure activities, 54% of their participants were not satisfied, compared with 60% in our group.

We also compared the satisfaction with support of visually impaired adolescents and that of physically impaired adolescents. There was no difference between the groups. The satisfaction with the number of network members for undertaking activities was also equal, as was the satisfaction with the content of a relationship. Physically impaired adolescents seemed to be even more satisfied than visually impaired adolescents concerning the size of their network as necessary for giving support (Van Gulick & Klaver, 1998).

To conclude, the personal network of our blind and visually impaired participants seemed more similar than different to that of adolescents without impairments. The results showed that for structural network aspects we found relatively more differences, than for functional network aspects.
8.2 Psychosocial characteristics

In this second section, research question b is answered, i.e.:

b What is the psychosocial development - as measured by psychosocial characteristics, well-being and loneliness - of blind and visually impaired adolescents, compared with that of sighted adolescents?

Firstly, the results of the blind and visually impaired adolescents are described (8.2.1). Conclusions regarding the comparison of our results are given in 8.2.2.

8.2.1 Visually impaired adolescents

On average, the adolescents in our study seemed to think positively about themselves; in other words, they experienced high self-esteem. In their childhood and adolescence, the vision and attitude of persons in society in our country tended more towards inclusion and equality of all persons. It is conceivable that the amount of negative reflections from other persons, which may have a negative effect on a sense of high self-esteem (Tuttle, 1987), diminished. This might have had a positive effect on the adolescents' sense of self-worth and the perceptions of their competence in everyday life. In sum, in spite of the possible difficulties in dealing with vision loss, in general our participants show no risky development of their self-esteem.

Several background characteristics could predict differences in self-esteem. It should be noted, however, that the differences between subgroups within our sample were small. Participants who felt somewhat less positive about themselves were females, adolescents who felt dependent on other persons for their mobility, and adolescents with a progressive visual disorder.

In general, the visually impaired adolescents in our study demonstrated a high sense of internal locus of control. We found no significant differences compared with sighted peers, even when corrected for the older age of our participants. Based on experiences and concerns of professional caretakers and parents about a low feeling of internal locus of control of visually impaired children and adolescents, this result is surprising.

Research into the rearing situation of visually impaired adolescents (Udema, 1996; Wesselink, 1996) showed that their parents were supporting and stimulating their children to be self-assured individuals. Most professionals working in the rehabilitation of visually impaired persons in the Netherlands focus on flexible support and giving persons as much independence as they can handle. Combined with the improved technical devices in the last decade, this might have contributed to relatively high feelings of control. Although individuals with a disability are starting to feel more and more equal in our country, the struggle is not yet over.

In general, the differences in level of internal locus of control in our group of participants were small. We found one small effect of sex: females
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experienced a slightly lower level of locus of control.

Coping is defined as the use of cognitive behaviors or strategies to handle or manage a stressful situation (Lazarus & Folkman, 1984). The strategies used by visually impaired persons are not often studied. We studied the use of several coping strategies. The first set of strategies were related to general problem situations and focus on three kinds of strategies: problem-focused, emotion-focused and avoidance strategies. Problem-focused and avoidance strategies were the most frequently used strategies. These strategies are viewed in general as effective ones. The second set of strategies were related to how the participants acted in awkward situations in relation to (consequences of) the visual impairment. Participants were asked about their use of passive, active, and emotion-focused strategies in these kind of situations. The findings showed that in these kinds of situation the participants on average used the passive strategies (doing nothing) most often.

Multiple regression results showed that a few small differences regarding coping strategies within the sample visually impaired adolescents existed. The adolescents with more ineffective coping strategies were the moderately visually impaired who had a progressive disorder and a late onset of the visual problems, and felt highly dependent on other persons for their mobility. We found no sex differences for this psychosocial characteristic.

The degree of acceptance of the visual impairment of our participants was, on average, not in an alarming phase. However, the process of accepting is a lifelong process of growth, not a static one (Tuttle, 1987; Dodds et al., 1993). Based on the average results and the statements in the interviews, most participants did not experience their impairment as an obstruction. However, compared with the four phases of Dechesne (1979), they might be in phase 1 or in phase 4 (see section 2.3.1). Because the ages of our participants varied by as much as ten years (they were 14- to 24-year-olds), it is conceivable that this variation in the two phases did occur. However, because on average the members of our group had high levels of self-esteem and of internal locus of control, we state that the average level of acceptance seemed not problematic. Nevertheless, we have to take into account that especially adolescents may exhibit a super-independent attitude, trying to prove to the world and themselves that they are fully competent and adequate (Tuttle, 1987).

The adolescents in our study who experienced relatively more problems with accepting their impairment were those who felt highly dependent on others for their mobility and had a progressive disorder and a late onset of the visual problems.

Dodds et al. (1991, 1993, 1994) described certain indicators for adjustment to visual impairment, i.e. learned helplessness, depression, attributional style, self-esteem, locus of control, self-efficacy, handicap acceptance, and attitude towards visually impaired persons (see Chapter 2). A high level of adjustment is characterized by low levels of anxiety, an absence of depression, high self-
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Esteem, a high sense of self-efficacy, and a high acceptance of the visual disability (Dodds, Bailey, Pearson & Yates, 1991). Our factor adjustment is based on self-esteem, acceptance of the impairment, problem-focused coping strategies, internal locus of control, and emotion-focused coping strategies. The adjustment score is a z score, which implies that the mean for the total group of participants is zero. The lowest adjustment score in our group of participants was -3.6 and the highest 2.3. On the basis of the standard deviation (1) it was demonstrated that 18% of the total group experienced relatively more difficulties in adjusting to their blindness or visual impairment. So, in general the level of adjustment seemed not alarming. Which adolescents did experience problems in this regard was revealed by the regression results. A low level of adjustment to blindness or visual impairment was connected with being female, feeling dependent for mobility, not living independently, and having a progressive disorder.

On average, the participants in our study reported a high degree of general well-being. The results for several domains revealed that when it comes to well-being with regard to school and sports, they feel somewhat less happy. The degree of general well-being and well-being with regard to their circle of friends was equal.

Although the differences between subgroups within our sample with regard to well-being were small, several groups felt less happy, i.e. older adolescents, adolescents that feel dependent on other persons for their mobility, and severely visually impaired adolescents.

The visually impaired adolescents in our study did not appear to feel very lonely. Based on the standard deviation, 22% of our group experienced more severe feelings of loneliness. This result only partly confirmed the experience of professionals that visually impaired adolescents are faced with a greater risk of isolation. Regression results demonstrated that, on average, two groups felt lonely more frequently, i.e. adolescents that felt dependent on other persons for their mobility and those that had received special education.

To conclude, it seems that the psychosocial development of blind and visually impaired adolescents is reasonably good. The sometimes described or discussed problematic psychosocial development of blind and visually impaired adolescents did not apply in general to the studied group of adolescents. Of the total sample of visually impaired adolescents in our study (N=316), approximately 14% experienced relatively more problems in one or more domains. For loneliness, this percentage was somewhat higher. Regression analysis revealed that the following background characteristics had a negative association with the psychosocial development and feelings of well-being and loneliness: being female, feeling dependent on others for mobility, having a disorder which was acquired later in life, and having a progressive disorder. So, for the blind and visually impaired adolescents who did experience problems in one or more psychosocial domains, these problems correlate mainly with vision-
related factors and only weakly with socio-demographic and context variables. These results provide indications for parents and professionals.

8.2.2 Comparison of results

As mentioned in Chapter 6, on average the psychosocial development of the blind and visually impaired adolescents in this study seemed to be reasonably good, showing only a few differences when compared with sighted adolescents. This does not correspond to all literature on psychosocial characteristics of visually impaired persons. However, the more recent studies (Huurre et al., 1998; Obiakor & Stile, 1992) also demonstrated no or just a few minor differences between visually impaired adolescents and their sighted peers.

We found that the self-esteem of visually impaired adolescents was higher than that of sighted adolescents in the Utrecht reference project (Rispens, Hermanns & Meeus, 1996). Our findings are in contrast with some other studies which found that impaired adolescents are more at risk with regard to the development of a high self-esteem (Gerestein, 1986; Verkuyten, 1988; Beaty, 1992). Other studies showed the same results, i.e. no differences between visually impaired and sighted adolescents with regard to self-esteem (Obiakor & Stile, 1992; Huurre & Aro, 1998; Huurre, Komulainen & Aro, 1999).

The self-esteem of visually impaired Dutch adolescents and of blind and visually impaired British adults (Dodds et al., 1993) did not significantly differ. The relation between self-acceptance, acceptance of having a visual impairment, a high sense of internal locus of control, effective coping strategies, and high self-esteem was confirmed in our study. The adaptive skills of our participants seem to be adequate.

It has been stated that self-esteem increases with increasing age (Harter, 1990). However, in our study, we found no effect of age on self-esteem. On average, the 21- to 24-year-old adolescents experienced the same level of self-esteem as the youngest group (14- to 17-year-olds). A Dutch study (Gerestein, Baarda & Van Weelden, 1987) demonstrated that visually impaired adolescents experienced more problems concerning their self-esteem than blind adolescents. We found no differences between these groups. In a recent Finnish study, visually impaired females reported a lower level of self-esteem than visually impaired males reported (Huurre & Aro, 1998), as found in our study. Because they only studied sex differences, no results are available on effects of mobility or kind of disorder.

Physically impaired adolescents did not differ significantly from visually impaired adolescents and sighted adolescents with respect to self-esteem. The increasing self-esteem with increasing age as mentioned by Harter (1990) was found in this group of physically impaired adolescents (Van Gulick & Klaver, 1998). No other differences between subgroups were demonstrated.

Visually impaired adolescents and sighted adolescents did not differ regarding internal locus of control. The only study on the locus of control of visually impaired adolescents and sighted adolescents.
impaired persons with which the author is familiar was carried out more than thirty years ago by Land and Vineberg (1965). They found that blind children experience lower feelings of internal locus of control than sighted children do. However, our results differ. Parsons (1987) stated that a strong relationship exists between a high level of internal locus of control and a high level of adaptive behavior for blind and visually impaired children. This is confirmed by our study: we found significant relations between a high level of internal locus of control, high self-esteem, a high level of acceptance of the impairment, frequent use of effective coping strategies, and a high sense of well-being.

A comparison of the frequency of using coping strategies in problem situations in general between visually impaired and sighted adolescents showed that with regard to the frequency of problem-focused and emotion-focused strategies, the two groups did not differ from each other. However, visually impaired adolescents used avoidance strategies more often than the sighted adolescents did. This may be explained by feelings of insecurity or by visually impaired adolescents having less skills to cope with stressors. Rickelman and Blaylock (1983) and Van Beek (1988) stated a more frequent use of avoidance strategies by visually impaired persons as well. Adolescents with a physical impairment used problem-focused strategies less often than visually impaired adolescents did. No differences were found between physically impaired adolescents and sighted adolescents regarding coping strategies (Van Gulick & Klaver, 1998).

Rickelman and Blaylock (1983) found that a majority of visually impaired adults used passive strategies in situations connected with the consequences of their visual impairment. Our results confirmed this finding. Missing visual cues and feedback are partly the reason for using ineffective strategies in some situations, but also feelings of fear or insecurity might play a part (Van Beek, 1988). The difference in the choice of strategies for problem situations in general on the one hand, and situations that involve the impairment on the other hand, is interesting. This result confirms the statement of Sinnema (1992) that visually impaired persons should learn how to cope with the consequences of the impairment. Physically impaired adolescents seemed to use fewer passive coping strategies with regard to the impairment than visually impaired adolescents did (Van Gulick & Klaver, 1998).

Compared with the mean score and standard deviation of blind and visually impaired British (young) adults, the level of acceptance of the visual impairment by Dutch youths was significantly higher. However, one has to take into account that the British participants had only recently lost their sight and most of our participants had a congenital disorder.

Our results confirmed the results of a small Dutch study (Breurkens & Van Dooren, 1985), which also found a high level of acceptance of visually impaired adolescents. They demonstrated that visually impaired adolescents in regular education and visually impaired girls experienced more acceptance problems, which is not the case in our nationwide study.
In the study with physically impaired adolescents (Van Gulick & Klaver, 1998) it was demonstrated that they had the same level of acceptance of their physical impairment that visually impaired adolescents showed in accepting their visual impairment.

Research in the 1960s (Cowen, Underberg, Verrillo & Benham, 1961) established that visually impaired adolescents tended to experience more adjustment problems than blind adolescents did. We did not find this effect of degree of impairment on adjustment. Whereas they found no effect of living situation or sex, we did find such an effect. Furthermore, it is unknown whether Cowen et al. (1961) included such characteristics as dependency with regard to mobility and kind of disorder in their study, for which we found small effects on adjustment.

Schölte (1998) studied the psychosocial adjustment in adolescence of non-impaired Dutch adolescents. Indicators for adjustment in his study were self-esteem, brooding, loneliness, using substances, and delinquency. Sex effects on adjustment were not studied. However, he did study age effects and found no effect of age on adjustment, as our findings also demonstrated.

A comparison of the general well-being of visually impaired and of sighted adolescents showed that the latter seemed happier than the former. When adjusted for age-difference (our group is older), the degree of happiness of the two groups was equal. The age effect of well-being as found in our study was also demonstrated in sighted adolescents; well-being decreased during adolescence (Meeus, 1994). We found no sex differences for well-being, whereas sighted girls scored lower on feelings of well-being than boys did (Meeus, 1994).

The findings of a Finnish study (Huurre & Aro, 1998) also showed no significant differences regarding depression between visually impaired and sighted adolescents. Furthermore, they found no differences regarding feelings of depression within their group of visually impaired adolescents. We found that older adolescents, adolescents who feel dependent for their mobility, and severely visually impaired adolescents felt less happy.

Physically impaired adolescents proved to have the same score on well-being as visually impaired adolescents and non-impaired adolescents (Van Gulick & Klaver, 1998).

The comparison results concerning loneliness seemed to show no differences between sighted and visually impaired adolescents. However, the quality of the comparison possibilities is not high. Visually impaired Finnish adolescents more often reported feelings of loneliness than their sighted peers (Huurre et al., 1998). They also studied possible effects of sex and severity of the visual impairment. They found, as we did, no differences for sex or severity regarding feelings of loneliness.

Adolescents with a physical impairment proved to be significantly more lonely than our visually impaired participants (Van Gulick & Klaver, 1998). They found no differences between subgroups in this regard.
To conclude, our not alarming results regarding the psychosocial characteristics of visually impaired adolescents in general were confirmed by a recent study (Huurre et al., 1998; 1999). Their results also showed that the psychosocial developmental outcomes of many adolescents with a visual impairment were similar to their peers who do not have a visual impairment. They emphasized the need for more support regarding the psychosocial development of visually impaired girls, as we did. Research with sighted adolescents (Rispens et al., 1996) also described that females experienced more psychosocial problems, or internalizing problem behavior, than males did. Some other high-risk groups were also pointed out in our study: adolescents who feel dependent for their mobility, adolescents who had only recently acquired the disorder, and adolescents with a progressive or less predictable disorder.

8.3 Associations between network aspects, psychosocial characteristics, well-being and loneliness

In this third section, research question c is answered, i.e.:

What is the association between on the one hand several aspects of the personal network and on the other hand psychosocial characteristics, well-being and loneliness of blind and visually impaired adolescents, compared with that of sighted adolescents?

The theoretical framework of this study, as presented in section 2.5, provided suggestions regarding the choice of variables and the associations between the variables. Our explanatory model tested with Structural Equation Modeling was also based on the theoretical framework.

Basis of the framework is the socio-ecological model, including risk and protective factors. It proved to work very well in our study and provided an insight into how to identify successful groups and groups more at risk. In this section we first describe the results of the blind and visually impaired adolescents (8.3.1). Conclusions regarding the comparison of our results are given in 8.3.2.

8.3.1 Visually impaired adolescents

To gain more insight into the associations between network aspects, adjustment, well-being, and background characteristics of participants (such as age, or the severity of the visual impairment) we used different kinds of analyses, i.e. confirmatory factor analyses using the AMOS program, correlational results, and a large set of Structural Equation Modeling (SEM) results, also using the AMOS program.

Three sets of confirmatory factor analyses were carried out in order to study the factor structure of network aspects, psychosocial characteristics, and well-
being. If we could find satisfying factors, then this kind of aggregation of our
data would simplify the analysis for the associations between all variables of
our study in one explanatory model.

The confirmatory factor analyses for the structure within the network
aspects revealed a two-factor structure. Factors called the structural network
quality and the functional network quality underlie, respectively, the specific
structural and functional network aspects. The strongest indicators were size of
the network, total support, support from peers, and satisfaction with support.
The percentage of visually impaired network members showed a positive
association with structural network quality. It seems to indicate that the
possibility of identification with other blind or visually impaired persons is
important.

One factor - adjustment - was found with the confirmatory factor analyses
using the psychosocial characteristics. All the paths of the indicators for these
factors were significant; self-esteem and acceptance of the impairment were the
most important indicators for adjustment. Besides the joint positive association
of internal locus of control and acceptance with adjustment, a negative
correlation existed between the error terms of locus of control and acceptance.
This means that there also was a contradiction in the results of these two
variables: a high score on internal locus of control is associated with a low score
on acceptance, and vice versa.

An acceptable one-factor structure regarding well-being was found for our
data of blind and visually impaired adolescents. All the paths of general
happiness, happiness regarding school, circle of friends and sport, and
loneliness to the factor well-being were significant. Happiness regarding sport
was less important, and the general feeling of happiness and loneliness were
the most important indicators for the factor well-being. Besides the joint
positive association of happiness regarding school and circle of friends with
well-being, a negative correlation existed between the error terms of happiness
in these two domains. This means that there also was a contradiction in the
results of these two variables: a high score on happiness regarding school is
associated with a low score on happiness regarding circle of friends, and vice
versa.

The second step was to combine all the factor models in one explanatory model
for the associations between them. Before doing so, we described correlational
results of the structural and functional network aspects on the one hand and
psychosocial characteristics, well-being and loneliness on the other hand. These
univariate correlation results showed that a few moderate correlations were
found. In general, the functional network aspects had more meaning in this
regard than the structural network aspects. Most important network aspects
for the psychosocial characteristics and well-being were satisfaction with the
perceived social support, a reciprocal helping relationship, high level of support
from peers, high level of total social support, having a romantic partner, and
listing many friends.
The three models of factor structures were then combined into an explanatory model regarding the direct and indirect relations between all four factors. We used Structural Equation Modeling to study these direct and indirect relations. The final, most appropriate model that we found was not perfect. We had to make some, theoretically conceivable, changes when creating this model. The fit is only just good, therefore the interpretations of the explorative results should be considered with caution.

Four significant positive paths were found. The first path was between the factors structural network quality and functional network quality. The paths from structural network quality to the other factors (i.e. adjustment and well-being) were not significant. The factor functional network quality did have a significant positive meaning for adjustment and well-being. Because support, especially from peers, and satisfaction with the perceived support were the strongest indicators for the factor functional network quality, these aspects are also the most meaningful for adjustment and well-being. Adjustment had a significant, strong positive path to well-being, too. To conclude, the factor functional network quality is meaningful for well-being because of its direct and indirect effect - via adjustment - on well-being. The factor structural network quality is less important in the group of blind and visually impaired adolescents, but should not be ignored. The psychosocial characteristics were important for well-being, too. Using this explanatory model explained 69% of the variance of well-being. This is a satisfying result. Protective factors of a high level of well-being and adjustment are high level of support from peers, satisfaction with support, high self-esteem, high acceptance of impairment, and large network size with some visually impaired network members. The distinction in provider systems for social support proved to be meaningful for the associations with adjustment and well-being, as demonstrated in the correlation results in 7.3 as well as by Cauce et al. (1994). Overall, we may conclude that the theoretical model described in Chapter 2 worked well and was improved upon in our study, resulting in figure 7.9 in Chapter 7.

Background characteristics of the participants proved to have a few significant effects on the four factors. Sex, kind of disorder, and dependency on mobility had the strongest effects. Together with age and living independently, they contributed to a larger amount of explained variance, although the difference was not spectacular. The regression results mentioned in Chapters 5 and 6 showed some more, although relatively weak, relations between background characteristics and all the separate variables. Within the aggregated factor structure and when combining all the effects in a multivariate design, these small effects became even smaller. The SEM results including background characteristics cautiously indicated certain groups that are more at risk, i.e. younger adolescents, adolescents with a progressive visual impairment, females, participants who feel more dependent on persons for their mobility, blind participants, and participants living independently.

To summarize, especially functional network aspects did have meaning for adjustment and well-being. The explanatory model explained 69% of the variance of well-being, which was satisfying. Including background
characteristics improved the model only slightly, indicating that the network factors had more meaning than individual and context variables did.

8.3.2 Comparison of results

How do our results and those regarding the meaning of network aspects as mentioned in the literature differ, and how are they similar? First, we describe the comparison with our two reference projects. Second, the comparison with general literature is presented.

The significant but small effects of network aspects on adjustment and well-being, especially concerning the meaning of the structural network aspects, were similar with other results. The results regarding the importance of support for well-being or behavior problems, with the accent on the importance on support from peers, also corresponded. In our study, parental support was even less meaningful compared with the results of the two reference projects; this, however, may be due to the older age of our participants.

The meaning of the concept 'satisfaction with the perceived social support' can not be compared because it was not included in the two reference projects. On the other hand, the importance of perceived conflict with network members, which had some effects in the Leiden project, could not be compared because we did not include this aspect.

Results of structural equation modeling, concerning network factors, adjustment factors and well-being, are not available for blind and visually impaired persons in other parts of the world. However, several studies have performed regression or correlation analyses in order to examine (some of) the relations between the above-mentioned factors or variables. Because this is the only comparison we can make at the moment, these are the results we discuss.

Huurre et al. (1998) studied the relation between support and self-esteem, loneliness and depression of blind and visually impaired Finnish adolescents. Regression analyses revealed that support was a positive predictor for high self-esteem, high well-being, and less loneliness. Our results were similar. Support from peers was a stronger predictor than parental support, as also indicated by our results. The amount of social support has no significant relation with self-esteem. This holds for support from parents as well as the support from peers.

Weiner (1991) found that age and the degree of the visual impairment did not influence the structural and functional network aspects. Variables that did influence these aspects were sex, having a job, and level of mastery. These three variables influenced the size of the network: females, persons with a job, and participants with a high level of mastery had a larger network than did males, unemployed participants, and persons with a low level of mastery.

Van Beek (1988) concluded that the behavior problems, especially social problems, of visually impaired youths are related to low self-esteem, a negative self-concept and poor social skills. Improving social skills leads to increased well-being.

Varni et al. (1992) concluded that perceived peer support was a more
powerful predictor of adjustment to a physical disease compared with parent or teacher support.

Based on correlation analyses, Van Gulick and Klaver (1998) showed that adolescents with a physical impairment who had a larger network perceived more social support, as we found in our study as well. Interesting was the negative correlation between high support from peers and low acceptance of the impairment, and high parental support and low self-esteem. A possible explanation for this is that adolescents who experience psychosocial problems might need or ask for more support (see also section 8.4). Physically impaired adolescents who were less satisfied with the social support reported more feelings of loneliness.

Young adults with a visual and cognitive impairment who were feeling less satisfied with the support, wanted more persons in their network from whom to receive more support. No correlations were found between structural network aspects and loneliness. They did, however, find a correlation between high satisfaction with the network aspects and less feelings of loneliness (Maat, Schotanus & Wildenberg, 1998).

Scholte (1998) presented results concerning the meaning of social support for the adjustment of non-impaired Dutch adolescents. He found that the pattern of support (see 2.3.2) effected adjustment in different ways. Adolescents who perceived high support from all four providers had a high adjustment. Adolescents who perceived low support from all four providers reported a low adjustment. The other three types of support patterns, which can be characterized as mixed support, produced mixed scores on the indicators of adjustment in his study. He did mention that support from friends was more important than support from parents, as we found as well.

The parental support and peer support of non-impaired adolescents aged 12 to 25 had a significant positive effect on general well-being. Parental support proved to have a greater effect on well-being than support from peers did, although their support is also important, as mentioned above (Meeus, 1994). In contrast, in our study we found that the effect of peer support was greater than the effect of parental support for the well-being of visually impaired adolescents.

Whittaker (1992) stated that adolescents with psychosocial problems who experienced high self-esteem and a lot of social support from their network members, perceived fewer depression symptoms. Therefore, support was a protective stress-buffer. These two variables proved to be meaningful for well-being in our study as well.

Although Tavecchio and Thomeer-Bouwens (1996) did not report results concerning the meaning of network aspects, they did mention that the existence of a social support system might act as a protective factor, and thus play a role in preventing the development of homelessness.

Several studies reported the positive effect of support, especially from peers, on well-being and adjustment (Robinson, 1995; Cauce et al., 1994; Walker &
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Greene, 1986; Heller et al., 1986). A high level of perceived social support is associated with positive self-image, improved coping, and a higher level of personal control and control over the environment. The satisfaction with support had more meaning than structural network aspects (Cauce et al., 1994), as was confirmed in our study. Kissmann (1989) also found that a high level of satisfaction was associated with a high level of life satisfaction. Furthermore, he reported that network aspects had more meaning for life satisfaction than age did. Although our results regarding the inclusion of age in the explanatory model for well-being found a direct effect of age, the contribution of network aspects was larger. Verkuyten (1988) also stated that supportive networks have more meaning for self-esteem and well-being than background characteristics.

8.4 Discussion

Every study should to be put into perspective: the interpretations and limitations of the results should be discussed, and remarks should be made with respect to content (8.4.1) and methodology (8.4.2).

8.4.1 Content

Our study is the first, large scientific study based on results on the viewpoint of the adolescents themselves rather than on reports from parents, teachers, or professional care takers. In our study, the main focus was on blind and visually impaired adolescents. The central questions were: What are the structural and functional aspects of their networks, what is their psychosocial development, and how are these two sets of variables related to each other? What are the differences and similarities of our results compared with results of sighted adolescents?

We first want to emphasize that almost a third of our target group (all blind and visually impaired Dutch adolescents) did not respond to our participation letter at all. Therefore, we have no data concerning their socio-demographic, vision-related or context characteristics. This necessarily limits our interpretation of the results for the situation of visually impaired Dutch adolescents. However, our interviewed sample is rather large compared with other studies on blind and visually impaired adolescents. The distribution of background characteristics of the participants was satisfactory.

What is the role of the visual impairment in our results? In general, we found little evidence that blind adolescents experience more problems than visually impaired adolescents do, or vice versa. Some results on specific variables, such as having more network members who are blind or visually impaired, are influenced by the severity of the visual impairment. The results concerning the direct and indirect effects of the visual possibilities (see Chapter 7) demonstrated that blind adolescents feel more unhappy than visually impaired
adolescents do. However, the contribution of this variable to the amount of explained variance in the explanatory model of the effects of vision was small. Since we found many similarities with, and only a few differences between other studies into the networks and psychosocial characteristics of sick or impaired persons, we can confirm certain common mechanisms or matters existing in this group of sick or impaired persons. Another argument for these specific mechanisms is the fact that we found differences between on the one hand our participants and other groups of impaired persons, and on the other hand non-impaired persons. Summarizing, the visual impairment does have an impact, but it seems to be not a very large one.

In every scientific research one has to make decisions regarding the content of the study. In our study, we tried to include all the relevant variables we thought were necessary in order to answer our research questions. In retrospect, we want to make some statements about relevant concepts we did not include. These concepts could be studied in future research.

Besides studying the perceived support and reciprocity in the supporting relationship with network members, it would be interesting to study the content and quality of the interaction more in detail. Especially the interaction between close family members might give more depth to our results. When focusing on these aspects, the rearing style of parents and the family climate, in relation to social support and developmental outcomes of the adolescent, could prove to be very interesting.

Research on network aspects of sighted adolescents and adolescents with behavior problems revealed some interesting results of conflict in relations and the importance adolescents attach to specific relationships (Buysse, 1997). Because we did not focus on anti-social behavior problems, as Buysse did, we did not include these concepts. However, especially the second concept (the importance adolescents attach to specific relationships) may provide more insight into the impact of certain relationships on developmental outcomes.

Another limitation was the number of personal characteristics of the adolescents we included in our study. In future research, social skills or the social competence of adolescents might be studied in relation to their social contacts. It also seems promising to focus more on independency than we could.

Other researchers who used the socio-ecological model as a framework usually included school risks. We only included variables regarding the support relationship with classmates, teachers, and itinerant teachers. Including such a variable as high-risk school careers would be interesting, though in our study both the time we had and the total amount of variables were limited.

Finally, we want to make some remarks about social support. Cohen and Wills (1985) explained occasional positive correlations between social support and psychological problems. That is, individuals who receive more support sometimes show poorer psychological adjustment than those who receive less support, as found in a study by Van Gulick and Klaver (1998, see section 8.3.2). These positive correlations may reflect the provision of support to those in need, rather than the ineffectiveness of social support in reducing stress. In our study
it is conceivable that for some adolescents a lot of social support prevents psychosocial problems (association: high-high); other adolescents receive a lot of support because they experience psychosocial problems (association: high-low). When computing the average, boths effects cause no effect of social support at all. Furthermore, Buysse (1997) found that a high level of social support from deviant peers was related to more anti-social behavior problems. All in all, the buffering effect of social support seems to be very complex, and this necessarily limits the interpretation of our results.

Another issue concerns the association between personal characteristics of individuals, social support and adjustment. Individuals with a poor adjustment might have a lack of supportive relationships. But was the lack of social support harmful for adjustment, or is the access to and benefits of supportive relationships a symptom of adjustment (Berndt, 1989)? So, one has to take into account that social support and adjustment might be overlapping or confounded constructs. In our study, which is entirely based on self-report measures (see 8.4.2), this warning must be taken seriously. People who take a negative view of their own psychological states are likely to have a negative view of their social worlds as well. A longitudinal design could solve these problems. Another solution is to study the effect of social support in a model that includes personal characteristics and environmental factors as well. Structural Equation Modeling, as we used in this study (see Chapter 7), provides more insight into the direct and indirect effect of support on adjustment and well-being.

8.4.2 Methodology

In this section, several comments will be made about the methodology we chose for our study. The first set of comments concern the questionnaires. Most of the variables are based on standard questionnaires or scales with satisfactory reliability. The questionnaires, however, do have some restrictions, such as standard answer categories. As a consequence, participants had to decide which category best suited their situation of beliefs. The questionnaires did not contain an 'I don't know' category. This may have caused some distortion. The decision to use these questionnaires was based on their standardizing quality and the possibilities they provide to compare our results with those of other groups of adolescents. This comparison of our results was an essential part of the study.

Furthermore, all instruments are based on self-reports. The viewpoint of the visually impaired adolescents plays a central role in this thesis. This is one reason we used this method. Very few other studies assessed the viewpoint of the adolescents themselves; instead, they used the findings of parents, professionals, or teachers when describing the situation of visually impaired adolescents. In our study, however, it is not clear whether the perceptions of the adolescents regarding their development and social functioning correspond to the actual situation. Since we used only self-reports, we cannot know for certain that our results represent the actual situation of the participants. Nevertheless, our results do show that these are the perceptions of blind and
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visually impaired Dutch adolescents. It should be noted, though, that the research results of non-impaired adolescents we used in our study for comparative purposes are also all based on self-report measures. Furthermore, the results concerning the social desirability bias seem not to differ from those of non-impaired children (Lagerweij, 1995). The scale used for social desirability bias does have imperfections: the wording of the items is rather childish and the subjects in the items are not optimally connected to the concepts in our study. We recommend that this connection between the concepts to measure and the subjects in a questionnaire for social desirability bias should receive more attention in future research.

Thirdly, our instruments are all based on quantitative measures. To overcome many issues as mentioned in this discussion section, complementary qualitative research would be an excellent starting point.

A recent study (Scholte, 1998) showed that friendships are experienced in different ways by the two friends involved in the relationship. This raises a question concerning the viewpoint of the listed significant persons of the relationship with that specific blind or visually impaired adolescent. Future research should determine whether, for example, the friends listed as such by a participant consider the participant their friend.

A more general point of discussion is the measurement in a survey of such psychological constructs as self-esteem or the acceptance of an impairment. The operationalization of these concepts is complicated. Our results regarding these concepts should be regarded as indicators for the actual constructs. Another general aspect is the intertwining of concepts. We already mentioned the confounding of such constructs as social support and adjustment. The psychosocial characteristics used in this study (self-esteem, locus of control, coping strategies, acceptance), loneliness and well-being are also strongly related to each other. The distinction between, for example, self-esteem and internal locus of control is not so unambiguous as we present it to be: one of the items on the self-esteem scale concerns the belief in one's own possibilities. This item could also be used to measure internal locus of control. This issue is partly solved in the Structural Equation Modeling analyses, using one factor: adjustment.

Another aspect regarding the measurement of concepts concerns the creation of certain factors in Chapter 7. Since these analyses had an explorative nature, they should be studied more extensively in the future.

As stated, the comparison of the results of visually impaired adolescents with those of other adolescents was an important part of our study. We used the same instruments as used in two reference projects. Two adjustments were necessary: firstly, we conducted computer-assisted personal interviews and computer-assisted self-interviewing methods, and the questionnaires were adapted to this method. The second adjustment concerned the visual impairment of our participants, which caused problems with figures on paper and visual sorting tasks. We estimate that the possible effects of these adjustments on the outcomes are minimal.
Nevertheless, the comparison with these reference adolescents is limited. The non-impaired adolescents differ from our participants on two aspects: age, and social economic status (SES). In the analyses, we took the age difference into account. Because SES only had some minor effects on the variables in our study, we did not correct for this difference. The comparison of our results with those of sighted adolescents could be improved in the future by studying a control group with the same background characteristics as our group and using exactly the same questionnaires and procedures.

Besides the comparison with results of two reference projects, we compared our results with general literature. This kind of comparison has advantages and disadvantages. A broader view on similarities and differences between impaired adolescents and non-impaired adolescents is an advantage. On the other hand, because these research results are frequently based on other instruments and different methods, the comparison clearly has some limitations.

The last subject of this discussion is the cross-sectional character of this study. Associations between network aspects, psychosocial characteristics, well-being, and loneliness were studied using advanced statistical techniques, such as Structural Equation Modeling. Still, to provide insight into the effects of one variable on another variable, one should ideally use a longitudinal design. Therefore, we are cautious in interpreting our explorative cross-sectional association results, and do not speak of causal influence at all.

8.5 Recommendations

At the end of this thesis we wish to provide blind and visually impaired adolescents, their parents, professionals and policy makers with some recommendations in order to improve the support for visually impaired persons in view of their psychosocial development.

The participants in this study emphasized the need for attention to such issues as how to cope with oneself and with others. This aspect of the development should therefore always be a part of rearing and supporting blind and visually impaired adolescents. Over the last ten years, this view has become more and more common in the provision of services to visually impaired adolescents. Furthermore, the balance between the necessity of support and striving after autonomy and independence is a very important issue in the life situation of the adolescents. Our participants seem to do well in this regard, although several groups are more at risk. This aspect should get attention, too.

Functional network aspects proved to be important for the adjustment and well-being of blind and visually impaired adolescents. Because some structural aspects do relate with functional aspects, they should not be ignored too. Perceiving support from peers had positive associations with adjustment and
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well-being; in fact, it seemed even more essential than parental support in adolescence. In other words, paying attention to the quality or content of relationships with peers is formulated as a recommendation. If adolescents are not satisfied with their relationships or the possibility to have relationships with peers, this should be taken seriously. Our results demonstrate that the quality of the existing relation with peers was on average satisfying. On the other hand, we found that visually impaired adolescents had fewer friends than sighted adolescents had. In other words, visually impaired adolescents depend on only a small number of friends. This might be a vulnerable situation when moving to another locality or changing schools. Furthermore, the results of our study showed that a large percentage of our participants wanted more contacts with their peers. Another relevant aspect in the network of relationships with peers is the presence of a few or one peers who have an impairment too. In this way, experiences can be exchanged and adolescents are able to identify with both non-impaired and impaired peers.

In light of the important role of teachers as providers of social support and the dissatisfaction with the relationships with persons at school, future research should determine which aspects need to be changed. Do adolescents with a visual impairment want to become less dependent on support from teachers, or do they want more (supportive) contacts with their classmates?

Our study showed that parental support did not decrease as the adolescent grew older. Some other studies with non-impaired Dutch adolescents, however, did find this decrease. Our participants also stated that they want to change the content of their relationship with their parents and that they want more contacts with their peers. Future research should provide more insight into this issue. From two complimentary studies we already know that visually impaired adolescents were rather satisfied with their rearing (Wesselink, 1996) and that the parents of a group of our participants reported that they were stimulating the independence of their children (Udema, 1996). The latter study, however, also found some evidence concerning the difficult balance parents of visually impaired adolescents have to make between supporting, controlling, and stimulating independency.

Of the psychosocial characteristics, self-esteem and acceptance of the impairment seem to be more essential than the other characteristics. These aspects should therefore always be taken into account when rearing or supporting visually impaired adolescents. However, the associations between self-esteem and acceptance on the one hand, and other psychosocial characteristics on the other hand show that these characteristics are important, too. As regards acceptance of the impairment in particular, adolescents should learn to be realistic and open about their possibilities and impossibilities. As one adolescent said: "You can be visually impaired or you can make yourself visually impaired." It shows an attitude of accepting that one can not see, but appreciating all the other possibilities one has, instead of more or less
voluntarily putting restrictions on one's behavior in every situation, due to the visual impairment.

Feeling independent and feeling happy are associated with each other, as are receiving support and feeling happy. To improve the balance between independence and receiving support, visually impaired adolescents should take advantage of government regulations and ask their network members only for the necessary support. In the words of a participant: "If you can do things yourself, you should do them." Therefore, institutions that support visually impaired persons should promote and explain these kinds of regulations to adolescents and their parents.

The comparison of results of visually impaired adolescents with non-impaired adolescents showed that their psychosocial development has more similarities than differences. The comparison of the network aspects showed also many similarities. Although, we described some concerns on the aspects 'number of friends' and 'satisfaction with undertaking leisure activities with peers'. We recommend that more attention should be paid to the possibilities of joint leisure activities with peers, especially sighted peers. This would also increase the chance of an adolescent developing a romantic relationship (it was demonstrated that adolescents wanted such a relationship). A romantic partner proved to be one of the most important sources of social support. Attention should be paid to the social skills necessary to initiate friendships and romantic contacts.

The integration - more specifically, the social integration - of visually impaired adolescents in the Netherlands seems to be in a more promising state than in an alarming one. In a way, we suspect that the shifting paradigms - from care to flexible support, from exclusion to inclusion - positively influenced the visually impaired adolescents themselves, their parents, all their network members, and the support and service they got. We therefore recommend that the support model should be employed in the rehabilitation of visually impaired persons, and that an emphasis be put on the inclusion of visually impaired persons, wherever desirable and possible, in living, education, working, and playing.

A final recommendation concerns future research. In view of some remaining and several new questions resulting from our research, we emphasize the need for longitudinal research in the field of the psychosocial development, social relations, and behavior of blind and visually impaired children and adolescents.