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Ph.D. Thesis

Identity and Health-Risk Behaviour in Adolescence



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Chapter 1

General introduction

1.1 Introduction

Despite the common knowledge of the health risks involved, many adolescents choose to adopt behaviours such as smoking, alcohol, and other drug use (Nielsen, Ringgaard, Broholm, Sindballe & Olsen, 2002; WHO, 1997). A greater understanding of young people's motivations to engage in these behaviours will put us in a better position to design programmes that tackle this major public health problem (Juszczak & Sadler, 1999). Therefore, the purpose of the present thesis is to enhance our understanding of the social psychological factors and processes underlying health-risk behaviour in adolescence. The specific focus is on the role of identity. The thesis reports four empirical studies in which three risk behaviours are addressed: smoking, marijuana use, and alcohol consumption. A central theme is adolescents' social identity derived from their affiliation with peer groups. This opening chapter starts with a short overview of the theories that form the framework of this thesis, followed by the research objectives. After that, the employed methods will be introduced and finally an outline of the thesis will be given.

1.2 Theoretical framework

Three theoretical approaches are particularly relevant for the present thesis, namely theories on identity, on social identity/self-categorization, and on adolescent peer groups. In this paragraph, the three approaches and their relevance to the present thesis will be briefly discussed.

1.2.1 Theories on identity

'Identity' has been defined and described from various theoretical perspectives. Although this thesis departs from a social psychological perspective, a short outline of developmental and sociological approaches to identity will also be presented here.

Erik Erikson (1968), developmental psychologist and founder of *identity development theory*, defined identity as "a sustained sense of self - a subjective perception of who we are in the eyes of other people". Without this sense of self, people would feel uncertain about their self and about their place in society, a state that Erikson described as "identity crisis".

Although identity formation is believed to be a lifelong process, Erikson's theory stresses the crucial importance of identity development during adolescence. Since this period in life is marked by the transition from childhood into adulthood, adolescents are in need of an identity that is less dependent on their parents and more strongly reflects their individual self. Adolescents, therefore, often struggle to find an answer to the question: "who am I?"

A sociological approach to identity is offered by theorists like Stryker and Burke (Stryker & Burke, 2000). This perspective highlights the importance of the social structures of society to the formation of people's identity. According to Stryker's *identity theory* (1980), who you are and the way others see you depends largely on the roles that you occupy in society (e.g., employee, parent, and spouse). Each role has different meanings and expectations attached to it and together these internalized expectations form the guiding basis for social behaviour. Identity theorists stress the reciprocal nature of the relationship between identity and behaviour, that is, identity is believed to guide the actions people choose to take, while these actions, in turn, should help to build people's identity.

Although the term identity is infrequently used within social psychology, related terms like self-concept, self-perception, and self-image are common concepts in this field. Related theories such as theories on self-verification (Swann, 1983) and self-enhancement (Sedikides, 1993) can be found too. These theories suggest that social behaviour is motivated by a fundamental need to maintain a coherent and persistent sense of self. This means that people seek to engage in behaviours that are consistent with their pre-existing self-concept (i.e., self-verification) or with their ideal self-concept (i.e., self-enhancement). Since adolescents require stability in their self-image more than any other age group, self-verification and self-enhancement motives may be particularly important in adolescence (Chassin, Presson, Sherman & Curran, 1992). In this respect, behaviour that puts health at risk could be explained as serving, for instance, a self-verification function in that adolescents who perceive themselves to be "a risk-taker" may be inclined to engage in risky behaviours in order to express and affirm this identity.

Despite the strong theoretical link with behaviour, identity, or 'self-concept' for that matter, has received surprisingly little attention in health behavioural research. Moreover, identity aspects have been missing, at least as an explicit construct, from the social psychological models that dominate this area of research. This lack of attention may be explained by various reasons. First of all, it might be partly due to difficulties in translating

the concept of identity into meaningful measures suitable for questionnaire research – the general methodological approach in this field. Furthermore, the reciprocal nature of the relationship between identity and behaviour may have drawn more attention to identity as a product of past behaviour than as an actual cause. Finally, some theorists have argued that identity is embedded in other “more primal” determinants of behaviour, such as attitudes and beliefs, and thus does not add value to existing behavioural models (cf. Sparks & Guthrie, 1998). Nonetheless, over recent years a growing number of researchers have started to include measures of identity in addition to more traditional social cognitive determinants of behaviour like attitudes, subjective norms, and perceived behavioural control. Most of this research has been conducted within the framework of the theory of planned behaviour (TPB: Ajzen, 1988). Self-identity in this context has been defined as “the extent to which the behaviour is a salient part of one’s self-concept” (e.g., Sparks & Shepherd, 1992). The results of these studies have demonstrated consistently that self-identity provides a significant and independent contribution to the prediction of behavioural intentions (e.g., Conner, Warren, Close & Sparks, 1999; Fekadu & Kraft, 2001; Sparks & Guthrie, 1998; Sparks & Shepherd, 1992; Terry & Hogg, 1996; Terry, Hogg & White, 1999).

1.2.2 Social identity and self-categorization theory

Despite many similarities with Stryker’s identity theory, social identity theory (Tajfel & Turner, 1979) and its successor self-categorization theory (Turner, 1985; Turner, Hogg, Oakes, Reicher & Wetherell, 1987) have developed as a separate line of research. According to this social psychological model, the process of identity development is facilitated by group membership. Developed by Tajfel and Turner in the late seventies (Tajfel & Turner, 1979), social identity theory posits that people derive an important part of their identity (i.e., their social identity) from being a member of a social group or category. Group membership is believed to provide people with a valuable mean to achieve and maintain positive self-esteem. The theory incorporates Festinger’s theory of social comparison (1954) which holds that people obtain self-evaluations by comparison with others. According to social identity theory, people secure positive social identity and self-esteem by evaluating their own group more positively than other groups.

The social cognitive processes underlying social identities and group behaviour have been described in greater detail by Turner and his colleagues thereby creating self-

categorization theory (Turner, 1985; Turner et al., 1987). Self-categorization theory states that when people categorize themselves and others into distinct social groups, they tend to perceptually accentuate similarities among members of the same group and differences between members of different groups. This means that group members are no longer seen as unique individuals but rather as exemplars of the group that they belong to. Moreover, in order to strengthen similarity with members of the own group (and to distinguish themselves from other groups), people aim to adopt the norms and values that are central to the group. What follows is that people indeed become a prototype of their own group (Hogg & Abrams, 2003).

Self-categorization theory has been applied to various social psychological processes, like stereotyping and discrimination, but probably most of all in the explanation of social influence. The way self-categorization theory explains social influence differs in important ways from social influence theories that traditionally have been used to explain health-related behaviour (cf. Terry & Hogg, 1996). Social influence has often been defined as perceived pressures to act in line with others (Ajzen, 1988). However, from a social identity/self-categorization point of view, people do not conform to group norms for mere social approval, but because these norms have actually become important in people's self-definition (Terry & Hogg, 1996). Furthermore, self-categorization theory suggests that people are influenced by the norms of relevant and salient groups and not by the norms of others in general. Thus, group norms should predict group-relevant behaviour for group identifiers, while general subjective norms should have little impact on people's behaviour (Johnston & White, 2003).

Although social influences are believed to play a significant role in adolescents' involvement in health-risk behaviour, much remains unknown about how these influences operate (Kobus, 2003). Social identity/self-categorization theory may provide a unique framework for understanding the social processes that underlie adolescent behaviour (Tarrant et al., 2001). From this perspective, adolescents' decision to engage in risk behaviour will depend upon the importance of the behaviour to the identity of one's group. If the behaviour is relevant to the group and group identity is salient, adolescents are expected to adopt the behaviour.

1.2.3 Theory and research on adolescent peer groups

As children become teenagers, peers take over much of the role of parents as a source of social reference (O'Brien & Bierman, 1988). Adolescents spend much time with their peers and the friendships and alliances they form tend to be very strong (Brown, 1990). Peers and peer relationships are believed to play a key role in adolescent health-risk behaviour. However, the mechanisms by which peer influences operate are still topic of debate. In a recent publication, Kobus (2003) reviews some of the main theoretical models and the current findings regarding the role of peers in adolescent smoking. While traditionally behavioural similarity among peers was seen as a consequence of peer pressure, today many researchers acknowledge that peer influences operate much more subtle (Kobus, 2003). For instance, adolescents may experience a desire to 'fit in' (Michell, 1997). Furthermore, research has shown that homogeneity in behaviour among peers reflects social influence as well as social selection processes, that is, adolescents select friends on the basis of similar behaviour (Bauman & Ennett, 1996; Urberg et al., 1997). Kobus (2003) also evaluates the different points of reference that have been used to look at peer influences (i.e., best friend(s), romantic relationships, peer groups, and social crowds). While many studies have addressed the role of best friends, considerable less research has focused on the role that larger peer groups play in adolescent behaviour. Yet, the stereotypes of these wider peer groups might be as much or even more influential than the behaviour of specific peers (Kobus, 2003).

Typical for adolescence is the emergence of peer groups consisting of adolescents who share a certain lifestyle (Brown, Eicher & Petrie, 1986). This lifestyle is often represented in a particular music preference, clothing style, or leisure time activity. Social labels are used to refer to members of these various groups like hippies, jocks, nerds, and punks (Kinney, 1993). Membership in these so-called 'crowds' is believed to provide adolescents with a highly salient social identity (McEllan & Pugh, 1999). In addition, the crowd system helps adolescents to select friendships (Urberg, Değirmencioğlu, Tolson & Halliday-Scher, 2000) and provides them with norms to guide their social behaviour (O'Brien & Bierman, 1988). The term 'crowd' was first introduced by Brown and colleagues (1986). Brown has pointed out the difference between friendship groups or 'cliques' which are based on interpersonal contact and crowds which are based on reputation. Hence, crowd membership does not necessarily require contact with other members of the same group (Brown, 1990).

Various methods have been employed to study peer crowds (McLellan & Pugh, 1999). Ethnographic research, including in-depth interviews and participative observations, has been conducted by researchers such as Eckert (e.g., 1989) and Kinney (e.g., 1993). Quantitative research has been conducted among others by Brown and co-researchers (e.g., 1986) and by Sussman and colleagues (e.g., 1994). Characteristic for Brown's research is the use of peer-nominations to classify crowd membership. Sussman, on the other hand, has typically used self-report measures of group identification. The choice for peer-report or self-report measures reflects not only a methodological but also a theoretical difference in perspective on crowd membership. According to Brown, crowd membership is based on *reputation* and thus can only be assessed by others. In contrast, Sussman sees crowd membership as a self-perception variable and thus puts weight on adolescents' own subjective feeling of identification with the group. From a mere practical point of view, this last approach is considerably less time consuming when doing research. A study that compared peer-report with self-report measures of crowd identification revealed overall similar outcomes on health-related behaviours (Urberg et al., 2000).

Lately there has been a rising interest in the link between peer group orientation and health-related behaviour. Studies have demonstrated that adolescent peer groups differ in the extent to which they engage in health-risk behaviour, including tobacco, alcohol and other drug use (Dolcini & Adler, 1994; LaGreca, Prinstein & Fetter, 2001; Mosbach & Leventhal, 1988; Schofield, Pattison, Hill & Borland, 2003; Sussman et al., 1990; Van der Rijt, d'Haenens & van Straten, 2002). However, many aspects of peer crowds and their role in health-risk behaviour remain understudied (Kobus, 2003). For instance, can the findings of these mainly American high-school studies be generalized to other adolescent populations? How does affiliation with multiple groups affect behaviour and what are the long-term effects of crowd identification? Furthermore, the study of adolescent crowds might be theoretically enhanced by incorporating the social identity/self-categorization perspective (Tarrant et al., 2001). Integration of this model may help to understand *why* similar behaviour within peer groups can be found.

1.3 Research objectives

While a fair amount of research has been conducted within the separate frameworks of self-identity, social identity, and adolescent peer groups, few studies have combined these concepts in the study of adolescent health-risk behaviour. In addition, there has been a call for social psychological research that supplements traditional paper-pencil questionnaires with alternative measurement techniques (Devos & Benaji, 2003). Researchers increasingly recognize that behavioural decisions are often influenced by cognitions that appear on an implicit, subconscious, level and thus may not be assessable by means of self-report measures (Bargh, Chen & Burrows, 1996). Over the last years, new methods have been developed which can be used to assess these implicit or automatic cognitions.

In the light of the above, three main research objectives were formulated which guided the studies in this thesis. Firstly, to examine more closely the role of social identity, as in peer group identification, in adolescent health-risk behaviour. Secondly, to examine the role of self-identity, that is, to what extent do adolescents regard health-risk behaviour to be an important part of their identity, and how does this affect their current and future behaviour? Thirdly, to test whether cognitions related to self-identity, social-identity, and health-risk behaviour also appear on the implicit level, and if so, whether these implicit cognitions improve our understanding of the role of identity in health-risk behaviour.

1.4 Methodology

For the purpose of this thesis, two types of data were collected. First of all, questionnaire data was gathered by means of a postal survey. This was done in cooperation with the Danish Cancer Society in Copenhagen. The second type of data involved so-called implicit data which was obtained using reaction time tasks. This last data collection took place at the University of Queensland in Australia. Because specifics regarding procedure, sample, etc. will be described in the methods section of the next chapters, they will not be described in much detail at this point. Instead, a more general background of both types of data collection will be presented here.

1.4.1 Postal survey data

The studies reported in chapter 2, 3, and 4 are based on self-reported data obtained through a postal survey. There are many advantages of using questionnaires. Because question presentation is uniform, it is a rather objective form of research compared to, for instance, oral interviews. Furthermore, statistical techniques can be used to determine validity, reliability, and statistical significance. In addition, questionnaires are relatively easy to administer and can be used efficiently to collect information from a large number of respondents across large geographic areas. Because of these advantages, the use of paper-pencil questionnaires is widespread in health and social psychological research.

Data for this thesis were collected as part of Monitoring af Unges Livsstil og Dagligdag (MULD). MULD is an annual cross-sectional survey among 16 to 20 year old Danes conducted by the Danish Cancer Society (Kræftens Bekæmpelse) in co-operation with the Danish National Board of Health (Sundhedsstyrelsen). The survey deals with a broad range of health-related behaviours, like physical activity, nutrition, and substance use, as well as a broad perspective of other personal issues such as religion, leisure time, and perceived well being. Respondents are each year randomly selected from the Danish population register. The first MULD was conducted in 2000 and comprised about 2000 respondents. The second data collection, MULD 2001, counted about 4800 respondents.

The present thesis uses data from the MULD 2002 survey which includes almost 4000 respondents ($N = 3956$). With the permission and support of the MULD project leader, extra items were added to the 2002 questionnaire. These items included measures of group identity, perceived group norm, and self-identity. The items regarding perceived group norm were uniquely developed for the current thesis while the items regarding self-identity were adopted from previous studies. The measure of group identity was based partly on an existing item in the MULD 2000 and 2001 questionnaire. Because this item had worked well in the preceding years, the wording of the question was not changed. However, the original list of ten reference groups, which was based on earlier interviews with representatives of the target population, was up-dated. Both in Esbjerg and Copenhagen, people in the target age were asked to name well-known adolescent peer groups as well as to comment on the existing list. Based on this information, a new list was created consisting of nine distinct groups (in Danish these groups were called: sporty, pop pige/dreng, skater/hip-hopper, bodybuilder, stille pige/dreng, techno freak, computer nørde, religiøs, and hippie).

The number of items that could be added to the questionnaire was unfortunately restricted due to limited space. Therefore, the measures consisted of single items. In addition, it was necessary to cut down in the measures of perceived group norm because these took up relatively much space (for each target behaviour answers were required regarding all nine groups). It was decided to leave out a measure of perceived group norm towards alcohol use as we speculated that these perceptions would vary the least among adolescents. All items were pretested among the target population to make sure that they were understood correctly. Furthermore, the three measures were spread out over the 20 pages long questionnaire in order to reduce the chance of carry-over effects.

The MULD 2002 questionnaire was sent to 6000 Danes in the age of 16 to 20. The response-rate was 66% which is reasonably high for a postal survey - the mean response rate among postal surveys published in medical journals is about 60% (Asch, Jedriewski, & Christakis, 1997). With the aim to investigate longitudinal associations, the research was extended with a second measurement. The second wave of data collection took place one and a half years later. However, it was decided not to follow-up on all former respondents. In order to save time and money, only those respondents who had indicated to identify with either one or two of the reference groups ($N = 2210$) were invited for the follow-up of the study. The names and current addresses of these respondents were retrieved through identifying codes that were printed on the original questionnaire. The new questionnaire consisted of 6 pages with items solely relevant to this thesis. This time, the distribution and collection of questionnaires were done by me, while the Cancer Society assisted in the data scanning. The response-rate of the second data collection was 74%.

The study reported in chapter 2 is based on data from the baseline data collection, while the studies reported in chapter 3 and 4 use data from both the baseline and the follow-up.

1.4.2 Implicit data

Despite the many advantages of questionnaire research, there are also some limitations connected with the use of self-report measures. For instance, questionnaire responses may be biased due to social desirability and self-presentational strategies. This may especially be a concern when the research focuses on 'stigmatized' behaviour such as smoking and drug use (Swanson, Rudman & Greenwald, 2001; Huijding, de Jong, Wiers & Verkooijen, 2005). In

addition, respondents may not always be conscious of the factors that influence their behaviour and thus may simply not be able to report relevant cognition correctly (Bargh et al., 1996). Researchers have argued that evaluations of the ‘self’, for instance, may be influenced by people’s group memberships even though they are not aware of these influences (Devos & Benaji, 2003).

Over the last two decades, several reaction time tasks have been developed that provide alternative ways to measure social cognition, like attitudes, self perception, and stereotypes. This development has been inspired by theories on implicit cognition which hold that cognitions become automatically activated on the mere presence of relevant cues (Bargh et al., 1996; Fazio, 2001). The finding that cognitions are activated automatically has led investigators to propose that response latencies can be used to obtain measures that resist the typical biases in questionnaire research (Fazio & Olsen, 2003). Ever since, research and application of implicit measures has spread rapidly around the world. Also within health psychology, a growing number of researchers have started to apply indirect measures to assess social cognition underlying behaviours like smoking (e.g., Huiding et al., 2005), HIV risk behaviour (e.g., Stacy, Newcomb & Ames, 2000), and alcohol use (see Krank, Wall, Stewart, Wiers & Goldman, 2005).

The final study reported in this thesis (chapter 5) employs besides self-report measures, implicit measures to investigate the relationships among self-identity, group identity, and health-risk behaviour. This study was conducted during a 5-months stay at the School of Psychology of the University of Queensland in Australia. This school has a centre specialized in research on group processes. Moreover, the school is familiar with implicit cognition research and has the necessary equipment to perform this type of research such as a computer lab and software to run reaction time experiments. The design of the study was inspired by a recent publication by Greenwald and colleagues (2002). In this article, the authors propose a strategy to study associative links between ‘self’ and ‘group’ attributes along with specific behaviour. Importantly, this so-called ‘balanced identity design’ permits the use of implicit assessment tools. The Extrinsic Affective Simon Task (de Houwer, 2003) was applied as the implicit measure. The syntax of this reaction time task is available on the internet and can be adapted to develop tasks that serve specific research aims. IT personal at the University of Queensland assisted in the preparation of the task. In addition, a brief paper-pencil questionnaire was developed which measured associations among the same concepts

but in a traditional manner. Participants in the study were 43 first-year psychology students at the University of Queensland.

1.5 Outline of this thesis

This chapter introduced the focus of the thesis, namely the role of identity in adolescent health-risk behaviour, and discussed the theoretical framework and the methodologies applied to meet the thesis' objectives. The next four chapters (chapter 2 – 5) present the four empirical studies that constitute this thesis. An overview of the design, data collection, sample, and research objectives of these studies is presented in table 1.1. Chapter 2 starts with a cross-sectional study on the relationship between adolescents' identification with distinct peer groups and their engagement in tobacco, marijuana, and excessive alcohol use. Special attention is paid to the role of perceived group norms and the effect of multiple group identification. Chapter 3 presents the findings of a prospective study on the relationship between adolescents' group identity and cigarette smoking. The main question this study addresses is whether group identification can predict changes in smoking behaviour over time. It also examines future behaviour of adolescents who identify with a group whose smoking norm does not match their own behaviour. Further, the study looks at the stability of group identities. The focus of chapter 4 is on alcohol consumption. It reports the findings of a study that aimed to investigate the value of self-identity and social (group) identity as concurrent as well as prospective predictors of adolescents' drinking behaviour. The final study, described in chapter 5, applies besides self-report measures an implicit measurement technique to study the interrelationship among self-identity, social identity, and risk behaviour. More specifically, the study aims to test whether students' cognitive associations among concepts related to self, college students, and binge drinking show a coherent (balanced) pattern. Finally, chapter 6 summarizes and discusses the findings of the empirical analyses as well as the strengths and limitations of the methods employed. Moreover, it presents implications for health promotion and provides suggestions for further research.

Table 1.1

A summary of the empirical studies presented in this thesis

Chapter	Design	Method of data collection	Target behaviour	Sample	Research questions
2	Cross-sectional	Postal survey	Smoking, marijuana use, alcohol use	Danish adolescents (N=3956)	<ul style="list-style-type: none"> • (How) is group identity related to adolescent health-risk behaviour? • Do perceived norms mediate the relationship between group identity and behaviour? • How does multiple group identification affect behaviour?
3	Prospective	Postal survey	Smoking	Danish adolescents (N=972)	<ul style="list-style-type: none"> • How stable are group identities? • Does group identity predict changes in behaviour over time? • How does an inconsistency between group identity and group norm affect adolescents?
4	Prospective	Postal survey	Alcohol use	Danish adolescents (N=1560)	<ul style="list-style-type: none"> • (How) is self-identification with health risk behaviour related to behaviour? • Do self-identity and group identity both and independently predict behaviour?
5	Cross-sectional	Reaction-time task + written questionnaire	Alcohol use	Australian first-year students (N=43)	<ul style="list-style-type: none"> • Does a balance among concepts related to self, group, and behaviour exist at the implicit level? • Does a balance among concepts related to self, group, and behaviour exist at the explicit level?

Chapter 2

Youth crowds and substance use: The role of perceived group norm and multiple group identification¹

Abstract

The impact of group identity on adolescent tobacco, alcohol, and marijuana use was examined through a postal survey. The study included adolescents who identified with 1 subgroup ($n = 1425$) as well as adolescents who identified with 2 ($n = 895$) or 3 ($n = 339$) subgroups. The results showed that identification with the pop, skate/hip-hop, techno, and hippie subgroups was associated with higher risks of substance use, while identification with the sporty, quiet, computer nerd, and religious subgroups was associated with lower risks. Perceived group norm mediated the group identity-substance use relationship. Furthermore, identification with multiple groups with corresponding norm increased norm-consistent substance use, while identification with multiple groups with opposing norms reduced normative behaviour. Implications for health promotion are discussed.

¹ This chapter has been accepted for publication in *Psychology of Addictive Behaviors* as Verkooyen, K.T. de Vries, N.K., & Nielsen, G.A. Youth crowds and substance use: the role of perceived group norm and multiple group identification. Parts of this chapter have also been presented at the 17th conference of the European Health Psychology Society in Kos, August 2004, at the 8th International Conference on Behavioural Medicine in Mainz, August 2004, and at the Nordic Alcohol and Drugs Conference in Kalmar, April 2004.

2.1 Introduction

Adolescence is a sensitive period with respect to substance use. Engagement in smoking, alcohol, and other drug use increases dramatically during this phase in life (Nielsen, Ringgaard, Broholm, Sindballe & Olsen, 2002). Although increased risk taking is a normal part of growing up and becoming an adult (Erikson, 1968), it also makes young people vulnerable to serious health damage. Acute health problems may result from substance-induced accidents, violence, unsafe sex, or unwanted pregnancies (WHO, 1997). In the long term, it is the adoption of unhealthy life-style patterns that leads to the development of chronic and widespread diseases (WHO, 1997). Therefore, both young people's current health and future adult health could be improved by influencing the factors that determine substance use in adolescence.

Within the field of health psychology, numerous studies have tried to reveal young people's social and cognitive motives to engage in substance use. Considerable attention has focussed on the social environment of adolescents. Social influences, especially those of peers, are generally believed to play a major role in adolescent substance use (e.g., Kuther, 2000; Maxwell, 2002; Neumark-Stzainer, 1999). Adolescents show an increased social orientation towards peers (Brown, Dolcini & Leventhal, 1997; Tarrant et al., 2001). Furthermore, substance use typically takes place in the presence of other young people (Brown, Eicher & Petrie, 1986). Various studies have tried to identify the potential sources of social influence and their relative impact on behaviour. The majority of these studies have focused on the impact of objective relations or friendships on young people, such as one's best friends, close friends, fellow students, and peers in general. However, an important, but understudied, source of social influence may come from peers with whom the adolescent feels a more subjective bond. Among young people the formation of subgroups, also called crowds, is very apparent. Crowds are large groups of adolescents who are kept together by a certain image or reputation (Brown et al., 1986). This reputation is based on a distinctive feature of the group and may be represented in a characteristic clothing style, music preference, belief, or leisure time activity. Typically, adolescents refer to their own group and other groups by using labels that reflect the primary group-characteristic such as skateboarders, brains, jocks, hippies, and so on (Brown et al., 1986). As group membership is based on a subjective feeling of identification with the group, direct contact with other people

of the same group is in principle not needed (Turner, Hogg, Oakes, Reicher & Wetherall, 1987).

Although group identification is an unavoidable part of adolescents' daily life and considered to be highly important to their development (Tarrant et al., 2001), relatively few studies have investigated the impact of subgroups/crowds on adolescent substance use behaviour. Most of the research on peer crowds has been done by sociologists and developmental psychologists, and their work has focused primarily on delinquency, intimacy, and school achievement (Giordano, 2003; Kiesner, Cadinu, Poulin & Bucci, 2002). Only over the last decade has evidence of the important role of adolescents' group affiliation in health-related behaviour started to accumulate (Dolcini & Adler, 1994; LaGreca, Prinstein & Fetter, 2001; Mosbach & Leventhal, 1988; Schofield, Pattison, Hill & Borland, 2003; Sussman et al., 1990; Van der Rijt, d'Haenens & van Straten, 2002). Previous studies, mainly conducted in North America, have typically identified four to eight discrete peer crowds with labels such as *jocks*, *burnouts*, *hotshots*, and *regulars* (Dolcini & Adler, 1994; Mosbach & Leventhal, 1988; Sussman et al., 1990). Overall, this research has found that those groups which are perceived (or see themselves) as "deviant", or at least unconventional, are the ones with the highest substance use rates (Dolcini & Adler, 1994; LaGreca et al., 2001; Mosbach & Leventhal, 1988; Schofield et al., 2003; Sussman et al., 1990; Van der Rijt et al., 2002).

2.1.1 Social identity/self-categorization theory

In addition to investigating substance use patterns among various youth crowds, the present study aimed to provide a better understanding of how group identification is linked to adolescent substance use. For this purpose, the study adopted a theoretical perspective derived from social identity/self-categorization theory (Tajfel & Turner, 1979; Turner, 1978). These theories describe the processes related to group membership and intergroup behaviour and may therefore provide a useful framework for the present research.

Social identity theory emphasizes the importance of group membership for people's self-concept and self-esteem (Hogg & Abrams, 2003; Tajfel, 1978; Tajfel & Turner, 1979). The theory postulates that people derive an important part of their identity (i.e., their social identity) from being a member of a social group. Indeed, strong group identification has proven to promote adolescents' identity formation, self-esteem, and ability to cope with developmental problems (Pombeni, Kircher & Palmonari, 1990; Tarrant et al., 2001). Self-

categorization theory (Turner et al., 1987) is an extension of social identity theory and describes in more detail the role of behavioural norms in group related behaviour. The theory suggests that people seek to strengthen similarity with own group members by behaving according to the perceived behavioural norms of the group (Hogg & Abrams, 2003). Engaging in group normative behaviour is believed to validate one's own status as a group member and to enhance group cohesion (Hogg & Abrams, 2003; Turner et al., 1987). It is this process that may explain why similar substance use patterns can be found within youth subgroups. From a self-categorization perspective, one would expect adolescents who perceive substance use to be the norm of their group to be more motivated to use substances.

Previous studies that examined the role of social identity/self-categorization in predicting health-related behaviour found, for instance, identification with the group *university students*, mediated by the perceived norm of the group, to predict students' intentions to engage in binge drinking (Johnston & White, 2003), physical exercise, and sun-protective behaviour (Terry & Hogg, 1996). Further, Ravis and Sheeran (2003) found that perceived similarity with prototype labels such as *healthy*, *attractive*, and a *"bore"* predicted university students' exercise behaviour, both directly and through its relationship with descriptive norms. Finally, Schofield and colleagues (2003) found identification with various peer group descriptors (e.g., *rebels*, *using illegal drugs*, *studious*, *religious*) along with the behavioural norms attached to these labels to predict high school student's smoking behaviour.

2.1.2 The present research

The present study examined crowd affiliation and tobacco, alcohol, and marijuana use among Danes in the ages of 16 to 20. Whereas previous studies have relied on school-based samples to study group membership and health-related behaviour (Dolcini & Adler, 1994; LaGreca et al., 2001; Mosbach & Leventhal, 1988; Schofield et al., 2003; Sussman et al., 1990; Van der Rijt et al., 2002), the current research involved a national representative sample. The names of the studied crowds were obtained through prior consultation of the target population. In all, nine focus group discussions, each involving 6-8 students, were held at five different types of high schools (i.e., different vocational and other secondary schools). Participants were asked to mention well-known peer groups in Denmark. In addition, participants of later discussions were asked to comment on earlier mentioned crowds. The group names that appeared to be

most prominent and consistently were included in the present study. Translated directly from Danish into English, these names were: *sporty* (i.e., having an active lifestyle), *pop boy/girl* (i.e., listens to pop music and wears “fashionable” clothing), *bodybuilder* (i.e., frequenting gyms and being muscular), *skate/hip-hop* (i.e., affiliates with skateboarding and/or hip-hop music), *quiet boy/girl* (i.e., an introvert lifestyle), *techno freak* (i.e., listens to techno music), *computer nerd* (i.e., homebound, new technology oriented), *religious* (i.e., church going, norm abiding), and *hippie* (i.e., expressing liberal views and lifestyles inspired by the 1960s and 1970s). We aimed to investigate both the potential direct association between adolescents’ group identity and substance use, as well as the mediating role of perceived group norms. In addition, we aimed to extend the research in this area by examining the effect of multiple group identification on substance use. Adolescents not necessarily affiliate with one particular crowd. Instead they may feel ties with two or even several crowds (Brown et al., 1986). Brown and colleagues (1986) concluded from their school-based studies, that up to fifty percent of students either identifies with two groups, floats among several groups or is outside the crowd system. Possessing multiple identities means being subject to multiple group norms that may or may not be similar to each other. So far, little is known about how people are affected by the competing pressures of multiple norms (Brown et al., 1986, Stryker & Burke, 2000).

2.2 Method

2.2.1 Procedure

Self-reported data was collected in autumn 2002 as part of a national survey on health and health-related behaviour among 16-20 year old Danes. Questionnaires were sent to the home addresses of 6000 males and females (about 2% of the total 16-20 year old Danish population) who were randomly selected from the Danish population register. The randomization procedure consisted of selecting Danes in the target age with birthday on a specific day of the month. With the questionnaire, respondents received a return envelope and a letter that explained the purpose of the study and ensured confidentiality. To enhance the response rate, a lottery was attached to participation in the study. In addition, reminders were sent out to non-responders after 3 weeks and after 6 weeks.

2.2.3 Respondents

Questionnaires were received from 3956 respondents (66%), 1738 males (44%) and 2218 females (56%). The mean age was 18.0 ± 1.42 years. Data on religious background indicated that 70% of the respondents were Christian, 20% were not religious, and 3.4% were Muslim. Non-response was higher among males (44% of the respondents versus 51% in the population), out-of-school youth (23% of the respondents were not in education versus 30% in the population) and adolescents with an Islamic background (3.4% of the responders versus approximately 5% in the population). Response rates did not differ significantly among age groups.

2.2.3 Measures

Substance use. Smoking, marijuana use, and drunkenness were assessed on different interval scales. To simplify data interpretation and comparability, however, a dichotomous measure for each behaviour was created. Smoking status was assessed by the question: “Do you smoke?” The answer options were: ‘yes-daily’, ‘yes-weekly’, ‘yes-less than weekly’, ‘no-I stopped smoking’ and ‘no-I never smoked’. A dichotomous smoking variable was created by recoding daily, weekly and less than weekly smoking into a score of ‘1’ and the other answers into a score of ‘0’. Marijuana use was assessed by the question: “Have you ever used hash/marijuana?” followed by the answer options: ‘yes-within last month’, ‘yes-within last year’, ‘yes-longer than a year ago’, and ‘no-never’. These scores were dichotomized such that respondents who used marijuana within last month scored ‘1’ and all others scored ‘0’. Finally, drinking to intoxication was assessed by asking the respondents to state how often they had been drunk during the last month. The answer categories were: ‘0’, ‘1-2’, ‘3-5’, ‘6-9’ and ‘10 or more’. The scores were dichotomized, such that respondents who had been drunk at least once were given a score of ‘1’, while those who had not been drunk were given a score of ‘0’.

Group identity. Identification with each of the social groups (i.e., sporty, pop boy/girl, skate/hip-hop, bodybuilder, quiet boy/girl, techno freak, computer nerd, religious, and hippie) was assessed by the question: “To what extent would you agree if a friend called you a ... [group name]?” The reason for phrasing the question somewhat indirectly was that respondents might be reluctant to label themselves whereas they may find it easier to agree to what a friend may call them. Pre-tests showed that adolescents were comfortable with the

way the question was posed. Answers were given on a 5-point scale from 1 ‘totally disagree’ to 5 ‘totally agree’. A score 4 or 5 (agree or totally agree) was interpreted as a positive identification with that group.

Perceived group norm. Perceived group norms regarding smoking and marijuana use, but not alcohol were assessed. Because the measures of perceived norm took relatively much space (answers were required regarding all nine subgroups) and space in the questionnaire was limited, we were restricted to the inclusion of two measures. It was decided to leave out a measure of perceived norms regarding alcohol use as we expected these perceptions to vary the least and be permissive for all subgroups. This expectation is based on previous research in Denmark (Nielsen et al., 2002). Perceived smoking and marijuana use among group members was assessed by the question: “How likely is a member of ... [group name] to smoke/to use marijuana?” Answers were given on a 5-point scale (1 ‘very likely’, 5 ‘very unlikely’). The scores on these measures were recoded so that higher scores indicated higher perceived use.

Time spent with peers. Although not designed for the purpose of the present study, the questionnaire contained an item asking respondents to state how much time they spend with peers after school or work hours. Four answer options were given: 1 ‘4-5 days a week’, 2 ‘2-3 days a week’, 3 ‘1 day a week’ and 4 ‘I have no friends at the time’. The scores on this item were recoded so that a higher score reflected more leisure time spent with peers.

2.2.4 Data analysis

First, the data of those respondents who positively identified with one single subgroup ($n = 1444$) were analyzed. Bodybuilders were excluded as they made a very small group ($n = 19$), leaving a sample of 531 male (37%) and 894 female (63%) single-group identifiers. Logistic regressions were performed with smoking, last month marijuana use, and last month drinking to intoxication as the dependent variables.

Next, the data of respondents who reported up to three positive group identifications were analyzed. To make interpretation easier, each subgroup was classified as either “low-risk group” or “high-risk group” based on the observed substance use prevalence among single-group identifiers. Substance use prevalence and odds ratios were calculated for the different combinations of number and type (i.e., low-risk versus high-risk) of group identifications.

2.3 Results

2.3.1 Group identification

The majority of the respondents (78%) showed a positive identification with at least one of the eight groups: 40% identified with one group, 25% with two groups, 10% with three groups and 3% with at least four groups. The number of positive identifications declined slightly with age ($F(7, 3948) = 5.95, p < .001$).

Table 2.1

Prevalence (%) of smoking, last month marijuana use and last month drinking to intoxication among single-group identifiers

	Sporty (n=608)	Pop (n=160)	Skate/ hip- hop (n=61)	Quiet (n=296)	Techno (n=45)	Computer nerd (n=59)	Religious (n=60)	Hippie (n=136)
<i>Smoking</i>								
Girls	23.7	51.3	53.3	21.2	56.5	55.6	18.9	52.9
Boys	23.6	60.0	47.8	27.9	50.0	22.0	26.1	46.9
Overall	23.6	53.5	49.2	23.1	53.3	27.1	21.7	51.5
<i>Marijuana use</i>								
Girls	2.4	8.7	20.0	3.0	4.8	0.0	0.0	26.5
Boys	9.7	15.0	40.0	10.6	36.4	12.5	14.3	50.0
Overall	5.2	10.3	35.0	5.2	20.9	10.7	5.4	32.1
<i>Drunkenness</i>								
Girls	66.5	73.7	73.3	50.7	60.9	87.5	28.6	82.2
Boys	78.9	78.9	80.0	61.6	81.8	62.0	56.5	93.8
Overall	71.2	75.0	78.3	54.0	71.1	65.5	39.7	85.0

2.3.2 Group identification and substance use

Table 2.1 shows the prevalence of substance use among single group identifiers. The differences between subgroups were most pronounced for smoking and marijuana use. The prevalence of smoking ranged between 21% and 53% and the prevalence of last month marijuana use between 5% and 35%. The differences were relatively smaller for last month drinking to intoxication, ranging between 39% and 85% - this behaviour was rather common among all groups.

The results of the logistic regression analyses are shown in Table 2.2. The odd ratios for smoking adjusted for sex and age¹ indicated a significantly lower risk for sporty (OR =

.39), quiet (OR = .48), and computer nerd (OR = .41), and a significantly higher risk for pop (OR = 1.75), skate/hip-hop (OR = 1.74), and techno (OR = 2.50). Regarding marijuana use, identification with sporty (OR = .40) and quiet (OR = .45) was associated with a significantly lower risk of having used marijuana in the previous month, while skate/hip-hop (OR = 2.92) and hippie (OR = 4.88) represented a significantly higher risk. Identification with hippie was also related to a higher risk of having been drunk in the previous month (OR = 2.98), while quiet and religious identifiers showed a significantly lower risk for this behaviour (OR = .66 and OR = .29, respectively). Because the subgroups with a relatively high substance use prevalence (i.e., pop, skate/hip-hop, techno, and hippie), could be expected to be more “outgoing” or “social” than groups with a lower substance use rate (i.e., sporty, quiet, computer nerd, and religious), we investigated whether the amount of time spent with peers accounted for the observed relationship between group identity and substance use. Leisure time spent with peers did indeed predict substance use (see Table 2, step 3), with respondents who reported spending more time with friends being more likely to smoke (OR = 1.44, $p < .001$), use marijuana (2.06, $p < .001$), and get drunk (OR = 1.62, $p < .001$). However, controlling for time spent with peers did not change the effect of group identification on substance use. Thus, time spent with peers had an independent main effect on substance use and did not mediate the group identity-substance use relationship.

2.3.3 Perceived group norm

A positive association was observed between perceived smoking and marijuana use among own group members and personal smoking ($r = .32$, $p < .001$) and marijuana use ($r = .31$, $p < .001$); the more a respondent perceived fellow group members to smoke or to use marijuana, the more likely this respondent was to smoke or to use marijuana (perceptions regarding alcohol use were not assessed). As expected, when perceived group norm was entered as a third step into the regression model after sex, age and group identity, it was a significant predictor of smoking (OR = 1.85, $p < .001$) and marijuana use (OR = 1.70, $p < .001$). Moreover, inclusion of perceived group norm significantly decreased the predictive power of group identity, suggesting that perceived group norm functioned as a mediator in the group identity-substance use relationship.

Table 2.2

Hierarchical logistic regression analyses predicting smoking, last month marijuana use and last month drunkenness

Step	Predictor	Smoking				Marijuana use				Drunkenness		
		OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR
1	Girls	1.01	0.98	1.06	1.04	0.34**	0.28**	0.31**	0.30**	0.61**	0.57**	0.60**
	Age	1.12*	1.15*	1.18**	1.16*	1.12	1.18*	1.19*	1.14	1.08*	1.10*	1.13*
2	Sporty		0.53**	0.50**	0.83		0.40**	0.37**	0.63		1.18	1.15
	Pop		1.92**	1.94**	1.42		1.02	1.01	0.80		1.52*	1.52*
	Skate/hipho		1.73*	1.59*	1.06		2.92**	2.71**	1.28		1.43	1.29
	P											
	Quiet		0.52**	0.60**	0.86		0.45*	0.57*	0.83		0.58**	0.66*
	Techno		2.04*	1.94*	1.28		1.78	1.40	1.03		1.13	1.11
	Comp. nerd		0.62	0.67	0.83		0.52	0.62	0.86		0.67	0.72
	Religious		0.45*	0.49*	0.71		0.41	0.46	1.03		0.30**	0.29**
	Hippie		1.89**	1.72*	1.24		4.88**	4.36**	2.03*		2.98**	2.85**
3	Time spent with peers			1.52**	1.50**			2.06**	2.08**			1.62**
4	Perceived group norm				1.60**				0.59**			
	Nagelkerke R ²	0.01	0.11	0.13	0.16	0.06	0.22	0.25	0.28	0.02	0.10	0.13

** $p < 0.001$, * $p < 0.05$ Note: Group identification is entered in the model as an independent categorical variable with eight categories. The group-specific odds ratios reflect the risk of using a substance for that group compared to the weighted mean risk of the other groups. Perceived group norm refers to perceived substance use of one's own group, and was included as a continuous variable.

2.3.4 Multiple group identification

Table 2.3 shows the substance use prevalence and odds ratios for each combination of number and type of group identification. The results showed a clear pattern: the likelihood of smoking, marijuana use, and drinking to intoxication decreased significantly with the number of identifications with low-risk subgroups while marijuana use and drinking to intoxication significantly increased with the number of high-risk group identifications. Smoking appeared rather unaffected by the number of high-risk group identifications. Identification with groups with opposing norms resulted in substance use rates that lie in between the rates for solely high-risk and low-risk group identification. In sum, multiple corresponding norms reinforced participation in normative behaviour while opposing norms inhibited normative behaviour.

Table 2.3

Prevalence of smoking, last month marijuana use, and last month drunkenness by number and type of group identification

No. identities	Type of groups		N	Smoking		Marijuana use		Drunkenness	
	low risk	high risk		%	OR	%	OR	%	OR
1 (n=1425)	1	-	102	23.6	1	5.5	1	64.1	1
	-	1	3 402	52.1	3.53**	22.7	5.03**	78.5	2.04**
2 (n=895)	2	-	333	13.2	1	2.5	1	48.0	1
	1	1	482	32.5	3.31**	12.3	5.45**	75.8	3.38**
	-	2	80	51.2	7.01**	30.4	17.02**	88.8	8.55**
3 (n=339)	3	-	45	10.9	1	0.0 [†]	1	39.5	1
	2	1	189	21.5	2.18	10.9	5.52	62.7	2.57**
	1	2	99	44.4	6.40**	16.8	9.11*	78.6	5.61**
	-	3	6	50.0	8.00*	50.0	45.0**	33.3	0.77

** $p < 0.01$, * $p < 0.05$.

[†] To enable the calculation of odds ratios 1 artificial person has been added to this cell.

2.4 Discussion

In line with previous studies, we found the prevalence of substance use to vary substantially between different youth groups. Four groups were identified with generally higher rates of substance use (pop, skate/hip-hop, techno, and hippie) and four groups with generally lower substance use rates (sporty, quiet, computer nerd, and religious). The differences could not be explained solely by differences in age, sex, or time spent with peers. The variation between groups was most pronounced for smoking and marijuana use and less evident for drinking to intoxication. This observation is consistent with the results of a Dutch study (Van der Rijt et al., 2002), which also found alcohol use to be more common among various teenage subcultures than smoking and soft drug use. The researchers concluded that drinking is much more accepted than smoking and marijuana use and therefore less useful as a way to rebel against conventional norms. Indeed, a European school survey revealed that Danish adolescents find it widely normal and acceptable to get drunk (Hibell et al., 2004). According to social identity theory, people tend to increase differences between groups by engaging in behaviour that distinguishes them from other groups (Turner et al., 1987). However, given its broad acceptance, drunkenness may not serve as a tool to distinguish one's own group from other groups.

The results further suggest that perceived group norms play a key role in the way group identification is linked to adolescents' substance use. Adolescents who perceived members of their group likely to smoke or use marijuana were much more likely to smoke or use marijuana themselves. Moreover, controlling for this association diminished the direct effect of group identification on substance use, indicating that differences in perceived behavioural norms at least partially account for the differences in substance use between groups. This finding supports the assumptions made by self-categorization theory, and highlights the importance of perceived group norms in the context of adolescent health-related behaviour.

Finally, our analyses of multiple group identification revealed that multiple corresponding norms reinforce engagement in norm-consistent substance use while multiple conflicting norms impede normative behaviour. This is valuable information since a substantial proportion of young people identifies with more than one crowd.

2.4.1 Study limitations

Some limitations of this study should be considered. Like any study that relies on self-report data, the results may reflect some degree of response bias. However, using postal questionnaires that lacked direct person-identifiable information minimized this bias as much as possible. Further, the cross-sectional nature of this study does not permit conclusions about the causal direction of the observed associations. For instance, we can not say with certainty that perceived group norms actually cause adolescents' behaviour. It is possible that adolescents' own behaviour regarding substance use may have driven the perception of the group norm. In fact, it is a well-known phenomenon that people tend to overestimate the number of people that engage in similar behaviour (the false-consensus effect; Ross, Greene, & House, 1979). The same uncertainty applies to the direction of the group-behaviour relationship. Social identity/self-categorization theory presumes that people adopt the behavioural group norms when group membership becomes salient (Terry & Hogg, 1996). However, similar behaviour may have been the result of selection rather than influence. Adolescents may have chosen a certain group because this group already engaged in similar behaviour, rather than changing their behaviour after joining the group. Various studies have tried to disentangle false consensus and selection effects from actual social influence by using longitudinal study designs. The results of these studies have been mixed; some researchers have stressed the impact of processes other than influence (e.g., Bauman & Ennett, 1996; Iannotti, Bush & Weinfurt, 1996), while others have found evidence for the influence of peers on substance use (e.g., Urberg, Degirmencioglu & Pilgrim, 1997; Wills & Cleary, 1999). Since evidence for both pathways has been found, a reciprocal relationship between substance use, perceived norms, and social influences is probably the most realistic assumption.

A final remark concerns the lack of information about the background of the studied social groups. Although beyond the aim of the present study, it may prove useful to gain an understanding of the different meanings and functions of tobacco, alcohol, and marijuana among various subgroups (Chassin, Presson, Sherman & Curran, 1992; Pavis, Cunningham-Burley & Amos, 1997). For instance, sports people may decide not to smoke or to take drugs because it could harm their performance, while religious people may choose not to do so as their belief tells them not to. Future research should focus more attention to these issues.

2.4.2 Implications for health promotion

The findings have implications for the planning of adolescent-focused health promotion strategies. First of all, it should be noted that not all adolescents are the same: we identified both high-risk groups and low-risk groups. Instead of focusing on adolescents as one target group, a more constructive approach may be to tailor interventions to specific subgroups. In addition, subgroups may be practical targets for health promotion since they make up very recognizable groups and are easier to target as compared with, for instance, adolescents whose best friend uses substances.

It may also be useful to concentrate on undesirable perceptions regarding the group norm. Although substance use rates were relatively high among some subgroups, the overall percentage of smokers and marijuana users hardly exceeded fifty percent in any of the groups studied. Hence, adolescents may be right in their perceptions that members of some groups are more likely to smoke or use marijuana than others, but may not realize that these members in general are most likely *not* to smoke or use marijuana. As a result, adolescents may tend to engage in activities that are much less common than they assume (Brown et al., 1997). So-called social norm interventions aim to reduce overestimation of substance use by providing people with accurate figures (Campo, Brossard & Frazer, 2003; Perkins, 2003). Lately, these interventions have become popular in the prevention of binge drinking among college students. However, little is known about their effectiveness (Campo et al., 2003). Campo and colleagues (2003) are skeptical as they argue that it is not the (mis)perceived behaviour of students in general that influence drinking but the perceived norms of meaningful friends. On the other-hand, a recent evaluation of a social norm campaign showed that the intervention did reduce overestimates of student drinking and that this reduction was associated with reduced drinking (Mattern & Neighbors, 2003). Either way, health educators may want to consider an adaptation of a social norm intervention that takes into account the perceived norms of specific subgroups. The findings of this present study suggest that subgroups are very relevant behavioural reference groups, particularly concerning smoking and marijuana use.

Chapter 3

Prospective relationships between group identity and adolescent smoking²

Abstract

The study examined prospective relationships between group identity and adolescent smoking. Self-reported data were collected in 2 waves with one and a half year in between. Participants were 1592 Danes ranging in age between 16 and 20 at Time 1. Respondents who identified with a group with a high-smoking norm were, compared to identifiers of a low-smoking norm group, more likely to have started smoking by Time 2 ($OR = 2.15$). Furthermore, an incompatibility between one's behaviour and the norm of one's group resulted more often in a change in behaviour ($OR = 2.00$) and group identification ($OR = 2.15$). The results confirm the importance of group identity in smoking initiation and call for more attention to this issue in smoking prevention.

² An adaptation of this chapter has been submitted for publication as Verkooijen, K.T., de Vries, N.K., & Nielsen, G.A. Prospective relationships between group identity and adolescent smoking. In addition, the findings have been presented at the Nordic Health Promotion Research Conference, Esbjerg 2006.

3.1 Introduction

Characteristic for adolescence is the emergence of reputation-based peer groups, or so-called ‘crowds’ (Brown, Eicher & Petrie, 1986; Brown, Dolcini & Leventhal, 1997). The names that adolescents give to members of these groups often refer to the particular reputation or stereotype of the group, like “jocks”, “skaters”, and “nerds” (Brown et al., 1986; Kinney, 1993). Although peer group membership has proven to be beneficial to adolescents’ identity formation, self-esteem, and ability to cope with developmental tasks (e.g., Pombeni, Kircher & Palmonari, 1990; Tarrant et al., 2001; Urberg, Değirmencioğlu, Tolson & Halliday-Sher, 2000), group affiliation has also been linked to negative outcomes. An increasing body of research has demonstrated an association between adolescents’ membership in particular crowds and their involvement in substance use (Dolcini & Adler, 1994; LaGreca, Prinstein & Fetter, 2001; Mosbach & Leventhal, 1988; Schofield, Pattison, Hill & Borland, 2001; Sussman et al., 1990; Van der Rijt, d’Haenens & van Straten, 2002; Verkooijen, de Vries & Nielsen, *in press*). Given the implications for public health, these studies provide valuable information. However, previous studies have typically been conducted at one point in time and thus do not provide insight in the prospective impact of group membership on behaviour. The present study therefore aimed to contribute to the existing knowledge by examining the longitudinal association between group identity and adolescents’ involvement in cigarette smoking.

3.1.1 Previous Research on Crowd Membership and Health-Risk behaviour

Empirical evidence of an association between crowd membership and health-related behaviours has only lately started to accumulate (Dolcini & Adler, 1994; LaGreca et al., 2001; Mosbach & Leventhal, 1988; Schofield et al., 2001; Sussman et al., 1990; Van der Rijt et al., 2002; Verkooijen et al., *in press*). While most of these studies have investigated multiple health-risk behaviours, all of them included tobacco use. This research has led to the general conclusion that smoking is a relevant group characteristic that can distinguish one group from another. Mosbach and Leventhal (1988) were the first to demonstrate an association between peer group membership and smoking. Their investigation among 7th and 8th graders of a junior high-school in Wisconsin generated four discrete peer groups: hot-shots, regulars, jocks, and dirties. Although dirties and hot-shots composed only 16% of the total

sample, they accounted for 56% of the smokers. In an attempt to replicate these findings in a population of Southern California high-school students, Sussman et al. (1990) identified the same four adolescent groups plus an additional group, namely skaters. Consistent with Mosbach and Leventhal (1988), the researchers found the group-specific smoking rates to vary between approximately 50% among of the so-called ‘high-risk groups’ and less than 25% among the other adolescent groups. More recently, we studied the prevalence of smoking among various Danish youth crowds (chapter 2). Again, a very similar division in smoking rates between groups with a high smoking norm and groups with a low smoking norm was observed. The similarity between the findings of our recent study and those of Mosbach and Leventhal (1988) and Sussman et al. (1990) is remarkable considering the fact that the studies used very different sampling and measurement strategies. The two earlier studies were conducted within a US school-setting, while ours involved a national sample of Danish adolescents. Furthermore, whereas the earlier studies used forced-choice formats to assess self-group identification, our study applied Likert-type scale items to allow assessment of affiliation with multiple groups. The fact that despite large methodological differences these studies have produced very similar results strengthens the findings of each individual study.

A limitation of most previous studies, however, is that they have been conducted at one point in time, and thus do not provide insight into the causal directions of the observed associations. Hence, it has remained unclear whether the group influences smoking behaviour, or whether the association between group identification and smoking is due to selection processes, in which adolescents select groups with similar behaviour as themselves (Kandel, 1978; Urberg, Değirmencioğlu & Pilgrim, 1997). The association between group membership and adolescent smoking has previously been studied from a social identity/self-categorization perspective (e.g., Schofield et al., 2001). According to this perspective, people observe the behavioural norms of the group that they identify with, internalize these norms, and subsequently tend to act accordingly (Hogg & Abrams, 2003; Turner, Hogg, Oakes, Reicher & Wetherall, 1987). If group identification indeed leads to conformation to the group norm as social identity/self-categorization theory suggests, one may expect to find changes in smoking behaviour in the direction of the group norm. A critical test requires at least two measurements over time. To date, only three studies have investigated group affiliation and adolescent smoking using a longitudinal study design (Schofield et al., 2001, 2003; Sussman

et al., 1994; Sussman et al., 2000). Sussman and colleagues (1994) investigated the prospective relationship between cigarette smoking and identification with six discrete peer groups. The results of this study revealed that group-self identification indeed predicts smoking involvement 1 year after. However, in a later publication (Sussman, Dent & McCullar, 2000) the same research group found self-group identification not to be predictive of smoking behaviour a year later. More recently, Schofield & colleagues (2001) examined adolescent peer group identification and smoking involvement over 3 six-month intervals. In particular, the researchers investigated whether the presence of an incompatibility between one's own behaviour and the behavioural norm of the group would lead more often to a change in either behaviour or group affiliation than the absence of such incompatibility. Consistent with expectations, they found that individuals whose behaviour was discordant with the group norm tend to express weaker identification with the group and, over time, to alter their main friendship group. However, the researchers did not find evidence that adolescents with discordant smoking behaviour are more likely to change their behaviour (Schofield et al., 2001).

3.1.2 The Present Research

In sum, prospective data on the association between group identification and adolescent smoking are scarce and have produced mixed results. With the aim to gain more insight into the longitudinal relationships between group affiliation and adolescent cigarette smoking, it was decided to extend our earlier cross-sectional work with a second measurement. The original study assessed identification with eight crowds among Danish youngsters. The results revealed four groups with generally higher rates of smoking (i.e., pop, skate/hip-hop, techno, and hippie) and four groups with generally lower smoking rates (i.e., sporty, quiet, computer nerd, and religious). The differences could not be explained by differences in age, gender, or time spent with peers.

Three research objectives guided the present data analyses. The primary objective was to test whether group identity actually predicts later smoking involvement. Consistent with social identity/self-categorization theory (Turner et al., 1979) we expected adolescents who identify with a high smoking norm group to be more likely to initiate smoking than adolescents who identify with a low smoking norm group. In addition, we expected identifiers of high smoking norm groups to be less likely to quit smoking than identifiers of

low smoking norm groups. Our second research objective was to replicate the attempt by Schofield et al. (2001) to investigate the prospective impact of a mismatch between the smoking norm of one's group and one's own behaviour. In line with Schofield et al.'s (2001) initial hypothesis, we expected the presence of an inconsistency between the group norm and the individual's behaviour to lead more often to a change in either behaviour or group affiliation than the absence of such inconsistency. Finally, our third objective was to establish the stability of adolescents' group identification over time. For the planning of health promotion activities it is essential to know how steady adolescent crowds are. If group affiliation appears to be very unstable then it might be difficult to target these transitory groups.

3.2 Methods

3.2.1 Design and procedure

Longitudinal questionnaire data were collected in 2 waves with one and a half years in between. The first data collection took place in autumn 2002. The Danish Population Register was used to select and invite 6000 adolescents in the age of 16 to 20 for participation in the study. The questionnaires, along with a return envelope and a letter providing information and ensuring confidentiality, were sent to the participants' home addresses. The questionnaires contained identifying codes that could be used to trace the participant's name and address for the purpose of future follow-up. To enhance the response rate, a lottery was attached to participation. In addition, two reminders were sent out to non-responders at three weeks intervals. After the reminders, questionnaires were received from 3956 (66%) adolescents. The second wave of data collection took place in spring 2004. Former participants who showed a positive identification (score 4 or 5) with one or two of the eight studied subgroups ($n = 2210$) were sent a second questionnaire. Again a lottery was linked to participation in the study. This time, one reminder was sent after 4 weeks to those who had not responded yet. At Time 2, questionnaires were received from 1611 (73%) respondents.

3.2.2 Measures

The first questionnaire served a larger study (the MULD survey; Nielsen, Ringgaard, Broholm, Sindballe & Olsen, 2002) and included a wide range of health-related topics. The follow-up questionnaire was much shorter as it included only a subset of the items posed in the initial questionnaire.

Smoking. Smoking status was assessed by the question ‘Do you smoke?’ Subjects were given the answers options ‘yes- daily’, ‘yes- at least once a week’, ‘yes- but less then once a week’, ‘no- I stopped smoking’ and ‘no- I never smoked’. A dichotomous smoking variable was created by recoding daily, weekly, and less than weekly smoking into a score of ‘1’ and the other answers into a score of ‘0’.

Group identity. Identification with the studied groups was assessed by the question: ‘If your friends would call you one of following names, to what extent would you agree?’ This was followed by a list of the group names (i.e., sporty, pop boy/girl, skater/hip-hopper, bodybuilder, quiet boy/girl, techno freak, computer nerd, religious and hippie). These group names were obtained through prior consultations with representatives of the target population and were meant to represent the most common youth crowds in Denmark. Answers were given for each group name on a 5-point scale: 1 ‘totally disagree’ – 5 ‘totally agree’. A score 4 (agree) or score 5 (totally agree) on this item was interpreted as a positive identification with the particular group.

3.2.3 Participants

The present research included only participants who identified with one single subgroup at Time 1 and completed both measures ($n = 1001$). Data from respondents with missing data on gender, age, smoking status and group identification ($n = 52$) were excluded from analysis. Hereafter, the sample consisted of 952 adolescents; 315 (33%) males and 637 (67%) females. The mean age at Time 1 was 18.1 ± 1.42 . Adolescents who participated in the follow-up were overall slightly older than adolescents who did not participate at Time 2 ($t = -2.74, p = .01$). Also, relatively more girls completed both measures. Further, the proportion of smokers at Time 1 was somewhat smaller among those adolescents who completed both measures compared to those who only completed the first (29.1% versus 32.1%).

3.3 Results

3.3.1 Data analysis strategy

In order to increase the study's statistical power and to simplify data interpretation, the initial eight crowds were collapsed into two categories; groups with at baseline an overall smoking prevalence below 25% (i.e., the low smoking norm groups) and groups with an overall smoking prevalence around 50% (i.e., the high smoking norm groups). The clear-cut difference in smoking prevalence between low and high smoking norm groups made this distinction plausible. Respondents who smoked at baseline (score = 1) but not at follow-up (score = 0) or the other way around were considered to have changed behaviour. Respondents who at time of follow-up indicated a weak identification (score ≤ 3) with the group they previously identified positively with (score ≥ 4) were considered to have changed (weakened) group identity. Odds ratios were calculated to compare probabilities of change between low and high smoking norm group identifiers and between respondents with consistent and inconsistent behaviour-norm patterns.

3.3.2 Description of low smoking norm and high smoking norm group identifiers

The category low smoking norm group identifiers consisted of 705 respondents and the category of high smoking norm group identifiers comprised 247 respondents. Among the low smoking norm group identifiers were 414 respondents who identified with sporty, 211 with quiet, 40 with computer nerd, and 40 with religious. Among the high smoking norm group identifiers were 104 adolescents who identified with pop, 84 with hippie, 36 with skate/hip-hop, and 23 with techno freak. Low and high smoking norm group identifiers did not significantly differ in age ($t = .47, p = .64$). Also gender was more or less equally distributed over the two categories (respectively 65% and 72% females).

3.3.3 Stability of group identity

The stability of identification with a particular group was calculated by dividing the number of adolescents who identified with the group at Time 1 only, by the number of adolescents who identified with this group at both times. Overall, the stability was moderate to high. Identification with the low smoking norm groups appeared to be more stable than identification with the high smoking norm groups. The stability rates among the high

smoking norm groups ranged from 0.48 (techno) to 0.61 (both skate/hip-hop and pop), whereas the stability rates among the low smoking norm groups varied between 0.63 (religious) and 0.88 (sporty). On the whole, high smoking norm group identifiers were nearly three times more likely to change group identity compared to low smoking norm group identifiers ($OR = 2.79$, 95% CI: 2.04 – 3.82).

3.3.4 Changes in smoking behaviour

Overall, 14.1% ($n = 95$) of the initial non-smokers had started smoking by Time 2. Table 3.1 shows the smoking initiation and cessation rates for low and high smoking norm group identifiers separately. Smoking uptake was relatively higher among the high smoking norm groups; identifiers with these groups were 2.86 times more likely to start smoking than low smoking norm group identifiers (95% CI: 1.77 – 4.61). The overall percentage of adolescents who had stopped smoking by Time 2 was 12.3% ($n = 34$). Relatively less identifiers of high smoking norm groups than identifiers of low smoking norm group had stopped smoking, however, this difference was not significant ($OR = .65$, 95% CI: .31 – 1.30).

Table 3.1

The effect of group identity on changes in smoking behaviour

Group identity	<i>N</i>	Smoking initiation		Smoking cessation	
		<i>n</i> (%)	<i>OR</i>	<i>n</i> (%)	<i>OR</i>
Low-risk group	705	62 (13)	1	22 (17)	1
High-risk group	247	33 (27)	2.86*	12 (11)	0.65

* $p < 0.05$

3.3.5 Prospective effects of group-behaviour consistency

Table 3.2 compares changes in smoking involvement and group identification between adolescents who showed a congruent norm-behaviour pattern at Time 1 (i.e., identification with a low smoking norm group and not smoking or identification with a high smoking norm group and smoking) and adolescents who showed an inconsistent norm-behaviour pattern (i.e., identification with a low smoking norm group and smoking or identification with a high smoking norm group and not smoking). Consistent non-smokers made up the largest group (n

= 551), followed by the consistent smokers ($n = 154$), while the smallest groups were the inconsistent non-smokers ($n = 124$) and the inconsistent smokers ($n = 123$). Adolescents with an inconsistent pattern were twice as likely to change their smoking behaviour ($OR = 2.00$, 95% CI: 1.37 – 2.93) and over two times more likely to change their group identification ($OR = 2.15$, 95% CI: 1.54 – 2.98) compared to adolescents with consistent norm-behaviour patterns.

Table 3.2

The effect of group-behaviour consistency on changes in smoking behaviour and group identification

Group-behaviour	<i>N</i>	Change in behaviour		Change in group identity	
		<i>n (%)</i>	<i>OR</i>	<i>n (%)</i>	<i>OR</i>
Consistent	674	74 (12)	1	110 (20)	1
Inconsistent	278	55 (25)	2.00*	82 (42)	2.15*

* $p < 0.05$

3.4 Discussion

The present study aimed to investigate prospective relationships between adolescent peer crowd affiliation and cigarette smoking. A distinction was thereby made between adolescent groups with a high smoking norm and groups with a relatively low smoking norm.

Group identification showed to be fairly stable over a one and half year period. Adolescents' affiliation with low smoking norm groups appeared to be more stable than identification with the high smoking norm groups. Seemingly, identification with a high smoking norm group was more connected to a developmental, and thus temporary, stage in life than identification with one of the low smoking norm groups in our study which may have stood for more persistent characteristics. Other researchers have made the same observation that adolescent crowd affiliation generally weakens with age (e.g., Brown et al., 1986). Yet, little is known about group attributes that may distinguish between relatively stable and less stable groups (McLellan & Pugh, 1999).

As predicted, identification with a high smoking norm group proved to be associated with a greater chance of smoking initiation. High smoking norm group identifiers were almost three times more likely to start smoking within the next one and a half year than low-norm group identifiers. Identification with a high smoking norm group also seemed to predict less smoking cessation, however, this association was not significant. The number of “quitters” in our sample was rather small ($n = 32$) and therefore the failure to demonstrate a significant association with identity might be due to a lack of statistical power. On the other hand, given the addictive nature of smoking, it is very plausible that smoking cessation is just not as easily provoked by one’s group identity as is smoking initiation. In other words, it may take more to stop smoking than to start smoking. Future research needs to clarify whether group identification also predicts smoking cessation or whether the decision to stop smoking is made on other grounds, perhaps influenced by one’s more direct social environment.

Consistent with our expectations and with the observations by Schofield et al. (2001), adolescents whose smoking behaviour did not match the group norm were more likely to weaken their group identification than adolescents whose behaviour agreed with the group norm. In addition, our data showed that the presence of an incompatibility also more often leads to a change in smoking behaviour. Thus, while previous research suggested that teenagers whose smoking involvement is discordant with the group norm tend to change group identity rather than alter their behaviour (Schofield et al., 2001), our study demonstrated that adolescents are more or less equally likely to change behaviour as group identity as a result of such discrepancy.

Overall, the findings support the hypothesis that adolescent crowd identification is a useful predictor of later smoking involvement. The findings are consistent with premises of social identity/self-categorization theory which hold that people adopt the norms and values of the group that they have become to identify with (Hogg & Abrams, 2003; Turner et al., 1987). However, some limitations of the present study need to be considered. First of all, the study did not include factors other than gender and age that may characterize adolescent crowds. Some individual-based variables, such as depression, loneliness, sensation seeking, and self-esteem, which have been associated with crowd affiliation (e.g., Dolcini & Adler, 1994; Prinstein & La Greca, 2002) may be the same as those that predict future smoking. Hence, it is possible that these antecedents of crowd identification are even better predictors of smoking (Sussman et al., 1994). Nevertheless, previous research that controlled for various

demographic and psychosocial variables has found independent relationships between crowd affiliation and smoking behaviour (Dolcini & Adler, 1994; Sussman et al., 1994). Another limitation of the present research is the fact that our data analysis included only adolescents who positively identified with one single subgroup. Although a strength of our study is that respondents were not forced to choose one subgroup, this also meant that respondents who did not identify with any of the groups (22%) were excluded from analysis. In addition, a large proportion of respondents who showed a positive identification with multiple groups (38%) were also excluded. Quantitative research on crowd identification is in its infancy and standardized assessment methodologies are not yet available (Dolcini & Adler, 1994; Urberg et al., 2000). A challenging task for future research is therefore to develop assessment and analyse strategies that take better account of the complexity of crowd affiliation in adolescence.

In sum, the findings extend those of earlier cross-sectional studies that have showed an association between adolescent group affiliation and tobacco use. The present findings clearly demonstrate that adolescent group identification is a significant predictor of later smoking involvement. In addition, this national study among Danish adolescents complements findings of previous studies that have relied on student samples (e.g., Dolcini & Adler, 1994; LaGreca et al., 2001; Mosbach & Leventhal, 1988; Schofield et al., 2001; Sussman et al., 1990). The current findings indicate that the relationship between group membership and smoking, at least in Denmark, does not restrict to school settings. The results once again underscore the need to consider the existence of peer crowds in the planning of health promotion interventions. Even though crowd affiliation tends to weaken as adolescents grow older (Brown et al., 1986), the group norm may have made its impact on behaviour which may then persist throughout the future (Sussman et al., 2000). Hence, smoking prevention efforts should preferably be directed at younger adolescents whose social identities, with related norms and values, are not fully established yet.

Chapter 4

Alcohol use among Danish adolescents: A self and social identity perspective³

Abstract

The study examined the role of self-identity and social identity in the drinking behaviour of Danish adolescents. Respondents were 1559 adolescents who completed a postal questionnaire at baseline and one and a half years later. Both self-identity and social identity proved to be significant and independent predictors of concurrent and prospective alcohol use. Respondents were likely to report higher levels of drunkenness and alcohol consumption if high alcohol consumption was an important part of their self-concept. Regarding social-identity, identification with the subgroups *pop*, *skate/hip-hop*, *techno*, and *hippie* was linked to overall higher levels of alcohol consumption, whereas identification with the subgroups *sporty*, *quiet*, *computer nerd*, and *religious* was associated with lower drinking levels.

³ An adaptation of this chapter has been submitted for publication as Verkooijen, K.T., Nielsen, G.A., De Vries, N.K. & Bloomfield, K. Alcohol use among Danish adolescents: a self and social identity perspective. Parts of the findings were also presented at the conference Wet Youth Cultures in Copenhagen, August 2005.

4.1 Introduction

Cross-national studies have shown that the alcohol consumption of young Danes, and especially their engagement in binge drinking, is one of the highest in Europe (e.g., ESPAD, 2005). Although binge drinking is often seen as a rather innocent part of growing up, the related risks, such as poisoning, (traffic-) accidents, violence, and unsafe or unwanted sex, are of serious concern. For health promotion to be effective, it is essential to consider the functions that (high) alcohol consumption may serve among adolescents (Pavis, 1997). The present study aimed to enhance our understanding of the drinking behaviour of Danish adolescents by examining the role of adolescents' identity in this context.

An identity approach to behaviour suggests that people engage in behaviours that express their self-concept (Swann, Stein-Seroussi & Giesler, 1992). To do so, helps to validate that part of one's self-concept and provides the person with sense of coherence (Sedikides, 1993). As children make the transition to adulthood, identity development becomes an increasingly important task (Erikson, 1968). Therefore, adolescents may be especially motivated to enact central aspects of their self-concept in their behaviour (Erikson, 1968; Chassin, Presson, Sherman & Curran, 1992). Hence, an identity perspective may be well placed for the study of adolescent drinking behaviour. However, surprisingly few quantitative studies have addressed identity as a major construct in adolescent alcohol use or in behavioural research in the whole taken. The little quantitative research that exists can be divided roughly into two main streams. The first line of research has examined the role of *self-identity* in the prediction of behaviour while the second has focused on *social identity*.

4.1.1 Research on self-identity

Acknowledging that identity issues may be overlooked by the behavioural models commonly applied in the health domain, researchers have begun to put forward 'self-identity' as a variable that may improve the explanatory and predictive value of existing models (e.g., Eagly & Chaiken, 1993; Sparks & Shepherd, 1992). Self-identity in this context has been defined as the extent to which performing a particular behaviour is a salient part of a person's self-concept (e.g., Sparks & Shepherd, 1992). It has been hypothesized that the more important the behaviour is to a person's self-concept, the more likely this person is to engage in the behaviour. Hence, from a self-identity point of view, a teenager who thinks of himself

or herself as a heavy drinker and considers this to be important to his or her self-definition would be more likely to engage in binge and heavy drinking than a teenager who does not perceive him or herself to be a drinker.

Research on the influence of self-identity on health behaviour has been conducted mainly within the framework of the Theory of Planned Behaviour (TPB: Ajzen, 1988). According to this model, behaviour is primarily determined by people's intention to perform the behaviour. Intention, in turn, is predicted by people's attitudes, subjective norms, and perceived behavioural control. The model is assumed to be complete in that any other factors are believed to influence behaviour through the three primary determinants (Ajzen, 1991). Hence, supporters of the TPB model would argue that identity as a social psychological construct may shape people's attitudes, subjective norms, and perceived behavioural control, but does not provide additional predictive value to the model. In addition, some researchers have argued against the inclusion of self-identity by stating that the construct would be merely a "proxy" for behaviour, that is, self-identity would be the outcome of one's previous behaviour and not a precursor for future behaviour (Sparks & Shepherd, 1992). Nevertheless, over the last decade a growing body of research, including longitudinal studies, has pointed at the significant contribution of self-identity as an independent fourth determinant of behaviour. For instance, Sparks and Shepherd (1992) found, in contrast to their own expectations, that a self-identity of "being a green consumer" predicted the consumption of organic vegetables in addition to the TPB variables. Other studies found self-identity to be predictive of contraceptive use (Fekadu & Kraft, 2001), eating a diet that is low on animal fat (Sparks & Guthrie, 1998), and sun-protective and exercise behaviour (Terry & Hogg, 1996). To date, only two studies have investigated self-identity in relation to alcohol use. Conner, Warren, Close & Sparks (1999) examined the role of self-identity in the alcohol consumption of British university students and found self-identity as a drinker to predict the intention to drink over and above the TPB variables. In an unpublished study, Morojele, Ziervogel, Parry, & Robertson (1997) found self-identity to be a useful predictor of binge drinking intentions for 10th grade South African students.

4.1.2 Research on social identity

The second line of research has addressed the role of *social identity* as a determinant of health-related behaviour. Social identity, as outlined by social identity theory, refers to that

part of a person's self-concept that is derived from being a member of a certain group or social category (Tajfel & Turner, 1979). Social identity is assumed to influence individual behaviour through the mediating role of group norms. This means that people will be more likely to engage in particular behaviour if the behaviour is in accord with the norms of their group, especially if identification with the group is strong (Terry & Hogg, 1996). Behaving conform group norms is believed to validate one's status as a group member and to reinforce that part of one's identity (Hogg & Abrams, 2003; Tajfel & Turner, 1979). Indeed, research has shown that the stronger one identifies with a given group the stronger the impact of the perceived group norm on self-definition and personal behaviour (Johnston & White, 2003; Terry & Hogg, 1996; Terry, Hogg & White, 1999). Thus, from a social identity point of view, one may expect adolescents who desire to be identified with groups that are associated with heavy drinking to demonstrate higher drinking levels.

Adolescents tend to affiliate strongly with their peers (cf. Tarrant et al., 2001). The type of peer groups adolescents join is believed to play a crucial role in the development of a social identity and, accordingly, may influence lifestyle choices substantially (O'Brien & Bierman, 1988). Peer group membership has been studied previously in the context of adolescent substance use (Dolcini & Adler, 1994; LaGreca, Prinstein & Fetter, 2001; Mosbach & Leventhal, 1988; Schofield, Pattison, Hill & Borland, 2001; Sussman et al., 1994; Van der Rijt, d'Haenens & van Straten, 2002). Although the majority of these studies have looked at cigarette smoking, some involved multiple behaviours including alcohol use (Dolcini & Adler, 1994; LaGreca et al., 2001; Van der Rijt et al., 2002). This research has found, for example, that alternative or "outsider" groups such as *burnouts*, *alternatives*, and *dirts* have higher rates of cigarette, alcohol and other drug use than other more "conforming" groups such as *jocks*, *brains*, and *hot shots* (La Greca et al, 2001, Mosbach & Leventhal, 1988). It thus suggests that those groups which are in some way seen (or see themselves) as alternative or deviant are those which are associated with higher rates of substance use.

However, most previous studies that have investigated social identity and teenage alcohol use have been conducted in the US, a country highly ambivalent toward drinking. In Denmark, where the legal age to be entitled to buy alcohol is 15, alcohol use among young people may be more widespread and accepted. Further, a recent Dutch study found that while teenagers who affiliated with "counter-culture" groups were more likely to smoke and use soft drugs, getting drunk was rather common in all studied subcultures (van der Rijt et al,

2002). The researchers argued that since alcohol use is rather socially acceptable, it provides less of an opportunity to express a rebellious (counter-cultural) identity than, for instance, smoking and drug use (van der Rijt et al, 2002). Like the Netherlands, Denmark is a rather wet European country where the “shock value” of teenage drinking most likely is non-existent.

4.1.3 The present research

The goal of the present study was to investigate the contribution of both self-identity and social identity to the prediction of drinking behaviour among Danish adolescents. For this purpose, postal survey data were collected and analyzed. A longitudinal study design was applied in order to investigate the predictive power of self-identity and social identity over time. To date, only one other study has investigated the combined effects of these two constructs in the prediction of behavioural decision making. Terry, Hogg, & White (1999) found, as predicted, significant and independent effects of self-identity and social identity on people’s intentions regarding household recycling. Although the theoretical focus and the design of their study differs from the present study, we proposed along the lines of Terry et al. (1999) that both self-identity and social identity will significantly and independently contribute to the prediction of adolescents’ drinking behaviour. With regard to self-identity, stronger identification with high alcohol consumption was expected to predict higher levels of alcohol use. Stronger social identification was predicted to produce either higher or lower levels of alcohol use depending on the type of social group. Social identity in our study was assessed regarding nine peer groups, namely *sporty*, *pop*, *skate/hip-hop*, *bodybuilder*, *quiet*, *religious*, and *hippie*. Because Denmark is a relatively “wet country” with an established reputation of teenage heavy and binge drinking, drinking may not be associated as strongly with a “counter-culture” or “deviant” identity as, for example, in North America. Rather, identification with a culture of “partying” might be associated with more drinking. To this end, we proposed the tentative hypothesis that identification with the peer groups *pop*, *skate/hip-hop*, *techno*, and *hippie* (i.e., those more associated with recreation without directly involving serious athletics) will be associated with higher levels of alcohol use than identification with the groups *sporty*, *quiet*, *computer nerd* and *religious*.

4.2 Methods

4.2.1 Participants and Study Design

Longitudinal data were collected in two waves with an interval of one and a half years. The first data collection took place in autumn 2002 as part of a national postal survey carried out by the Danish Cancer Society and the Danish Board of Health (MULD: Monitoring of Young people's Lifestyle and Everyday Life; Nielsen et al., 2002). Initially, 6000 boys and girls in the age of 16 to 20 were invited to participate in the study. This sample was selected from the Danish Population Register by date of birth. Questionnaires were received from 3956 (66%) adolescents, 44% males and 56% females. Respondents who showed a positive identification (i.e., score 4 or 5) with either one or two of the studied social identity groups ($n = 2210$) were again invited for participation one and a half years later (Time 2). At Time 2, questionnaires were received from 1611 (73%) respondents. Data from respondents with inconsistent answer patterns or missing gender or age ($N = 52$) were excluded from analysis. The final sample consisted of 1559 adolescents; 560 (36%) males and 999 (64%) females. The mean age at Time 1 was 18.10 ± 1.42 . Adolescents who participated in the follow-up were overall slightly older than adolescents who did not participate at Time 2 ($t = -2.03, p = .04$). Also, relatively more girls participated at Time 2. However, when controlled for sex and age, adolescents who did and did not take part in the follow-up did not significantly differ on the drinking or self-identity measures assessed at Time 1.

4.2.2 Measures

The questionnaire administered at Time 1 included various items concerning alcohol use. However, only the key items relevant to this study will be described here. These same items were also included in the follow-up questionnaire.

Alcohol use. Weekly alcohol consumption was assessed by asking the respondents to estimate how many alcohol units they consume during a typical week. As an example, the number of (standard Danish) alcohol units for various common alcoholic drinks were given. In addition, respondents were asked to state at how many occasions over the last 30 days they had been drunk. Here, the five answer categories were: '0', '1-2', '3-5', '6-9' and '10 or more'.

Self-identity. As a measure of self-identification with binge drinking, respondents were asked to state how much they agreed with the statement "high alcohol consumption is an important

part of who I am”. This item was taken from a study by Sparks & Shepherd (1992), adapted to the topic of drinking and translated from English into Danish. Answers were given on 5-point scales: ‘totally agree’-‘totally disagree’. The scores were recoded so that higher scores reflected higher self-identification.

Social-identity. Social identification with nine groups was assessed by asking respondents: “If your friends would call you one of following names, how would you agree?” This was followed by a list of nine group names: *sporty*, *pop boy/girl*, *skater/hip-hopper*, *bodybuilder*, *quiet boy/girl*, *techno freak*, *computer nerd*, *religious*, and *hippie*. The group names were obtained through prior discussions with representatives of the target population and were meant to represent the most common youth crowds in Denmark. Answers were given for each group name on a 5-point scale: ‘totally agree’–‘totally disagree’. The scores were recoded so that higher scores indicated stronger social identification. Because identification with the subgroup *bodybuilder* was overall very low ($M = 1.24 \pm .58$) it was decided not to include identification with this group in the data analysis.

4.2.3 Data analysis strategy

First, descriptive statistics were calculated for the drinking measures as well as for other relevant variables. Paired t-tests were conducted to examine potential differences between measures at Time 1 and Time 2. Next, two sets of hierarchical linear regression analyses were performed to test the efficiency of self- and social identity as predictors of both the frequency of last month drunkenness and weekly alcohol consumption. The first set of regression analyses involved a cross-sectional analysis of drinking behaviour at Time 1. The second set of regression analyses investigated the longitudinal effect of self-identity and social identity on respondents’ drinking behaviour at Time 2. Age (in years) and gender were included as control variables in the regression models.

4.3 Results

4.3.1 Descriptive analysis of drinking behaviour at Time 1

Less than eight percent of the respondents, 8.2% of the boys and 6.9% of the girls, reported not to drink any alcohol. Adolescents with an Islamic religion ($n = 26$) reported far more

often not to drink (77%) than protestant adolescents ($n = 1132$; 6.0%). Among drinkers, the mean age for drinking one's first alcoholic consumption was 13.6 ± 2.83 years and for being drunk for the first time 14.4 ± 2.83 years. No major gender differences in these debut ages were found. The majority of the drinkers (74%) had been drunk at least once during the past month; 41% had been drunk once or twice, 23% three to five times, and 9% more than five times. Most respondents considered their alcohol consumption as not being too high; only 7% reported to drink a little too much, and less than 1% ($n = 10$) reported to drink far too much. Yet, 12% of the drinkers said to have tried to drink less at parties. Drinkers' estimation of their best friend's alcohol consumption correlated strongly with their own consumption (Pearson's $r = 0.73$, $p < .001$). Moreover, they estimated their best friend's alcohol consumption during a weekend to be even higher than their own weekly consumption (paired sample t-test: $t = -7.2$, $p < .001$). However, few respondents (3%) indicated to feel pressured by friends to drink more than they actually want.

Self-identity

The means and standard deviations for self-identity, as well as drinking behaviour and social identity, are shown in Table 4.1. Compared to girls, boys drank more alcohol units per week ($t = 11.3$, $p < .001$) and had more often been drunk in the last month ($t = 6.9$, $p < .001$). Weekly alcohol consumption and frequency of drunkenness increased slightly with age (Kruskal-Wallis $\chi^2 = 26.2$ and $\chi^2 = 17.7$, $p < .001$). Self-identification with high alcohol consumption was generally low: 1.45 ± 0.92 on a 5-point scale. Girls identified less with heavy drinking than boys (independent t-test: $t = 5.40$, $p < .001$). Self-identity did not significantly differ among age groups.

Social identity

Girls identified significantly (i.e., $p < .05$) more strongly with *pop*, *quiet*, *religious* and *hippie*, whereas boys more strongly identified with *skate/hiphop*, *techno* and *computer nerd* (Table 4.1; p -values are not shown). No significant gender difference was observed for identification with *sporty*. *Sporty* was the subgroup with the highest mean identification score.

Table 4.1

Means and standard deviations of Time 1 measures

	Girls		Boys		Overall	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Weekly alcohol consumption ¹	6.05	5.94	10.77	10.13	7.79	8.07
Last month drunkenness ²	1.96	0.89	2.30	1.04	2.08	0.96
Self-identity ³	1.35	0.83	1.62	1.05	1.45	0.92
Social identity ³ :						
Sporty	3.13	1.43	3.22	1.49	3.16	1.45
Pop	2.23	1.25	2.01	1.20	2.15	1.24
Skate/hip-hop	1.36	0.80	1.63	1.15	1.46	0.95
Quiet	2.52	1.40	2.48	1.32	2.51	1.37
Techno	1.31	0.79	1.57	0.97	1.43	0.93
Computer nerd	1.27	0.71	2.18	1.32	1.60	1.07
Religious	1.66	1.08	1.57	0.97	1.63	1.04
Hippie	1.71	1.17	1.47	0.92	1.63	1.09

¹ Measured in alcohol units² Measured on a 5-point scale: '0', '1-2', '3-5', '6-9' and '10 or more'.³ Measured on a 5-point scale: 'totally disagree – 'totally agree'

4.3.2 Regression analysis of drinking behaviour at Time 1

Table 4.2 shows the outcome of the regression analyses predicting frequency of drunkenness and weekly alcohol consumption at Time 1. Self-identity, controlled for sex and age, accounted for 7% of the variance in drunkenness and 9% of the variance in weekly alcohol consumption. The effect sizes of self-identity ($\beta = .22$ and $\beta = .26$ respectively) were significant (and higher than for instance the effect of gender). Identification with the eight social groups turned out to be the strongest predictor of drinking behaviour. Entered at the third step⁴, it explained an additional 10% of variance in drunkenness and 9% of variance in weekly alcohol consumption. Although the group-specific effect sizes were small, they were significant and in the predicted directions: identification with *pop*, *skate/hip-hop*, and *hippie* predicted more drinking, while identification with *quiet*, *computer nerd*, and *religious* predicted less drinking. Only identification with *sporty* and *techno* was not significantly

⁴ Social identity was added to the model as eight continuous variables. We performed the same analysis with social identity added as dichotomous variables (score ≥ 4 versus score ≤ 3). The outcomes were very similar.

associated with drunkenness. Interestingly, the largest effects were found among those groups that predicted drinking behaviour negatively (e.g., *quiet* and *religious*).

Table 4.2

Hierarchical regression analysis predicting drinking behaviour at Time 1

Step	Predictors	Last month drunkenness			Weekly alcohol consumption		
		R^2	ΔR^2	β	R^2	ΔR^2	β
1	Gender (girls)	0.03	0.03***	-0.16***	0.08	0.08***	-0.26***
	Age			0.08**			0.08**
2	Self-identity	0.10	0.07***	0.22***	0.18	0.09***	0.26***
3	Social-identity:	0.20	0.10***		0.27	0.09***	
	Sporty			-0.03			-0.06*
	Pop			0.08**			0.07**
	Skate/hip-hop			0.10***			0.10***
	Quiet			-0.21***			-0.18***
	Techno			0.03			0.11***
	Computer nerd			-0.06*			-0.09**
	Religious			-0.10***			-0.06*
	Hippie			0.08**			0.10***

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

Note: the given betas were calculated after all variables had entered the model

4.3.3 Descriptive analysis of drinking behaviour at Time 2

The average weekly alcohol consumption at Time 2 (Table 4.3) was comparable to that at baseline ($t = -.26$, $p = .80$). Also the average number of drunken episodes last month did not significantly differ from Time 1 ($t = -1.00$, $p = .32$). Less than 30% of the subjects had not been drunk during the past month, 40% had been drunk once or twice, 22% had been drunk three to five times, and 8% more than five times. Again, boys reported higher weekly alcohol consumption ($t = 11.3$, $p < .001$) and more drunken episodes ($t = 5.81$, $p < .001$) than girls. Significant differences in age were no longer found.

Table 4.3

Means, standard deviations of Time 2 measures, and correlations with Time 1 measures

	Girls		Boys		Overall		Correlation with Time 1
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>Pearson's r</i>
Weekly alcohol consumption	6.01	6.49	10.73	9.73	7.77	8.18	0.57***
Last month drunkenness	2.00	0.87	2.29	1.01	2.10	0.94	0.51***
Self-identity	1.17	0.49	1.46	0.88	1.28	0.68	0.34***
Social identity:							
Sporty	3.26	1.41	3.33	1.43	3.29	1.41	0.78***
Pop	2.36	1.27	1.99	1.17	2.22	1.24	0.64***
Skate/hip-hop	1.37	0.80	1.74	1.19	1.50	0.98	0.62***
Quiet	2.47	1.35	2.52	1.33	2.49	1.34	0.67***
Techno	1.25	0.72	1.60	1.07	1.37	0.88	0.68***
Computer nerd	1.35	0.81	2.31	1.39	1.69	1.15	0.75***
Religious	1.73	1.09	1.67	1.07	1.71	1.08	0.64***
Hippie	1.66	1.10	1.48	0.94	1.60	1.05	0.69***

*** $p < 0.001$ Note. Weekly alcohol consumption was measured in alcohol units, all other variables were measured on 5-point scales.

Self-identity

At Time 2, self-identification with high alcohol consumption was overall lower than at Time 1 ($t = 7.52$, $p < .001$). Again boys showed a stronger identification with high alcohol consumption than girls ($t = 8.36$, $p < .001$). The correlation between respondents' self-identity at Time 1 and Time 2 was not very high ($r = .34$, $p < .001$), however, this could be explained by a difference in questionnaire format between Time 1 and Time 2; more items in the questionnaire referred to self-identity at Time 2 (see remark in discussion).

Social identity

The correlations between the respondents' social identities at Time 1 and at Time 2 were substantial (Pearson's r ranging between 0.62 and 0.78). Paired t-tests revealed that identification with the subgroups *sporty*, *pop*, *skate/hip-hop*, *computer nerd*, and *religious* was slightly higher at Time 2 compared to Time 1, while identification with *techno* was lower at Time 2 (p -values $< .05$). Identification with *quiet* and *hippie* had not changed significantly.

Table 4.4

Hierarchical regression analysis predicting drinking behaviour at Time 2

Step	Predictors	Last month drunkenness			Weekly alcohol consumption		
		R^2	ΔR^2	β	R^2	ΔR^2	β
1	Gender (girls)	0.02	0.02***	-0.08**	0.08	0.08***	-0.15***
	Age			-0.05*			0.02
2	Drinking behaviour ¹ T1	0.26	0.24***	0.44***	0.34	0.27***	0.49***
3	Self-identity (T1)	0.27	<0.01**	0.06**	0.34	<0.01*	0.05*
4	Social identity (T1)	0.29	0.02***		0.35	0.01**	
	Sporty			0.06*			0.01
	Pop			0.05*			0.01
	Skate/hip-hop			0.05*			0.03
	Quiet			-0.04			-0.05*
	Techno			-0.01			<0.01
	Computer nerd			-0.03			-0.06*
	Religious			-0.04			-0.03
	Hippie			0.09***			0.03

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.*Note.* the given betas were calculated after all variables were entered the model.¹ Last month drunkenness and weekly alcohol consumption respectively

4.3.4 Regression analysis of drinking behaviour at Time 2

Table 4.4 presents the summary statistics of the hierarchical regression analyses that tested the ability of self- and social identity to predict changes in drinking behaviour over time. Respondents' drinking behaviour at Time 1, entered after sex and age, explained respectively 24% and 27% of the variance in drunkenness and alcohol consumption at Time 2. After controlling for past drinking behaviour, self-identity, entered at the third step, still emerged as a significant predictor of drinking ($\beta=0.06$ and $\beta=0.05$), but now provided only an additional 1% of explained variance. Social identity, entered at the last step, added another 2% and 1% of variance, although the group-specific effect-sizes were small and for most groups, insignificant.

4.4 Discussion

The aim of the present research was to study the role that self-identity and social identity play in the drinking behaviour of Danish adolescents. A first exploration of our data confirmed the results of previous survey studies (e.g., ESPAD, 2005): the alcohol consumption among Danish adolescents is generally high and being regularly drunk is more the rule than the exception. Furthermore, from our respondents' reports this excessive drinking appears to start at a relatively young age. Worrisome is also the finding that hardly any adolescents view their own alcohol consumption being (too) high, which indicates the broad social acceptance of excessive drinking among young Danes.

A first set of regression analyses examined the cross-sectional (baseline) data. As expected, self-identity proved to be significantly associated with adolescents' concurrent alcohol use. Although adolescents' self-identification with high alcohol consumption was generally low, it did predict drinking behaviour, that is, adolescents were likely to report higher levels of drunkenness and alcohol consumption if high alcohol consumption was an important part of their self-identity. Also social identity predicted significantly and independently from self-identity adolescents' concurrent drinking behaviour. Stronger identification with the subgroups *pop*, *skate/hip-hop*, *techno*, and *hippie* were linked to an overall higher frequency of drunkenness and weekly alcohol consumption, whereas stronger identification with *sporty*, *quiet*, *computer nerd*, and *religious* was associated with lower levels of alcohol consumption. What is interesting to notice is that the group identifications with the strongest correlations to drinking behaviour were negative and were among those groups that could be considered "conservative" or at least non-rebellious, like *religious* and *quiet*. Thus, where differences in drinking behaviour appeared to stand out among Danish youth is in the direction of drinking *less* rather than more. Together, self-identity and social identity accounted, in the cross-sectional model, for 17% of the variance in last month drunkenness and 18% of the variance of weekly alcohol consumption. These proportions are fairly high given that an extremely well-developed model as the theory of planned behaviour has found to account on average for 27% of the variance in behaviour (Armitage & Conner, 2001).

A second set of hierarchical regression analyses involved longitudinal data. In order to evaluate behavioural change, the model controlled for past drinking behaviour. The results

showed that both self-identity and social identity contribute significantly to the prediction of drinking behaviour one and a half years later. Although the independent effect sizes were small, they were significant even when controlled for past drinking behaviour. This is a notable finding since drinking behaviour proved to be relatively stable, and thus past behaviour “absorbed” much of the variance, which makes it difficult to demonstrate strong predictors of behavioural change.

4.4.1 Study Limitations

The study was subject to some methodological limitations which should be taken into consideration when interpreting the findings. A considerable limitation of the study is its reliance on single-item scales as indicators of self- and social identity. Especially the measurement of self-identity could be improved. The questionnaire administered at Time 2 included two additional items referring to self-identification with high alcohol consumption (but were for comparative reasons not considered in the data analysis). The inter-item correlations between the item employed and the two other self-identity items were rather weak (Cronbach’s $\alpha = .59$ and $\alpha = .41$), indicating a low reliability of the construct. Hence, the predictability of self-identity to drinking behaviour may have been susceptible to differences in its measurement. Regarding the assessment of social identification, one may want to consider examining social identification not with scale variables but rather as separate groups. An advantage of the present study is that respondents were not forced to choose a group. On the other hand, one may question the value of investigating adolescents’ strength of identification with groups which are irrelevant to them. Still, when social identity was put in the model as dichotomous variables (i.e., high vs. low identification with the group) similar outcomes were obtained. Finally, a shortcoming of the present study is that it does not provide any information on the background of the specific subgroups and the possibly different (symbolic) meanings of alcohol use to each group. Further research, perhaps qualitative in nature, should complement the current findings in this respect.

On a theoretical note, self-identity and social identity in the present study appeared to be independently associated with adolescent drinking behaviour. However, independent effect sizes do not necessarily translate to theoretically different concepts and distinct influence mechanisms. Some researchers have proposed that self-identity and social identities may refer essentially to the same concept (Deaux, 1996; Flemming & Petty, 2000; cf. Terry

et al., 1999). They argue that identification with a particular behaviour implies reference to membership with the group of people that perform that behaviour. Vice versa, a social identity involves inevitably reference to group traits like behaviour (Deaux, 1996). Thus, a strong self-identification with binge drinking may imply nothing different than a strong identification with the group “binge drinkers”. Under this interpretation, one may indeed expect self-identity to have an independent impact on behaviour, just like any other social identity. From a social identity perspective, it will then depend on the situational context which type of social identity is most salient and thus most likely to influence behaviour (cf. Terry et al., 1999). Obviously, more research and better measures are needed to clarify the relationship between self and social identity.

4.4.2 Implications of the findings

A recent review of more than fifty controlled studies showed that the (long-term) outcomes of interventions that aim to reduce alcohol consumption among young people have been rather disappointing (Foxcroft et al., 2003). Hence, it may be worthwhile to explore new avenues within health education. The findings of the present study provide some indication that targeting self-identity and social identity concepts may offer a new and fruitful approach in the prevention of excessive drinking among adolescents. One could propose, for instance, interventions that attempt to discourage the formation of excessive-drinking identities and encourage the development of more conforming and/or health conscious identities that stand for more moderate alcohol use. Furthermore, health promotion activities may benefit from an approach that tailors messages to the specific identities of peer groups. As our data suggests, not all youth are equally likely to engage in heavy drinking.

However, the implications of the present findings are still speculative at this point. More research is needed before more definite conclusions can be drawn. Given the rather weak assessments of self-identity in the current study, future studies that apply multiple-item measures of this constructs are warranted. While social identity is extensively described by social identity theory, the self-identity construct, with its origin in both sociological and psychological literatures, is not as well-defined (Fleming & Petty, 2000; Sparks, 2000). Future research should aim to develop a multi-item measure of self-identity that reflects the construct best. Furthermore, to investigate the determinants of changing alcohol use, it is advisable to study younger adolescents whose drinking behaviours are less established.

Besides, identity influences appear to be most powerful during the early adolescent years (e.g., Brown et al, 1986). Future studies should therefore examine younger age groups to determine which behaviours are still malleable and how they may be influenced so that, for example, age of initiation may be postponed or in this case binge drinking may be delayed or attenuated. Regarding the formation of group identities, it should be noted that even though social identification proved to be relatively stable over a one and half years period, group characteristics may change over longer periods of time. This means that peer groups require monitoring over time (Sussman et al., 1994). Finally, the precise nature of the link between self-identity and social identity needs further investigation.

Chapter 5

Associations among the self, the group, and binge drinking⁵

Abstract

The present study aimed to assess students' cognitive associations among the concepts self, college students, and binge drinking by means of both explicit and implicit measures. The study adopted the Balanced Identity Design proposed by Greenwald and colleagues (2002). In line with the balance-congruity principle we expected the *self-binge drinking* association to be predicted by the interaction between the *self-college student* and the *college student-binge drinking* associations. Participants were 43 first-year psychology students who completed a short questionnaire as well as 3 adaptations of the Extrinsic Affective Simon Task (EAST; de Houwer, 2003). The explicit data partly fitted the predictions derived from the balance-congruity principle. The implicit data, however, did not reveal significant associations. Moreover, our EAST adaptations showed insufficient internal consistency. Further development of implicit measurement techniques is needed.

⁵ Parts of the findings reported in this chapter have been presented at the conference Perspectives on Memory and Cognition in Aarhus, June, 2006.

5.1 Introduction

Adolescents' affiliation with certain peer groups has been linked to their engagement in health-compromising behaviours, such as smoking, excessive drinking, and other drug use (Dolcini & Adler, 1994; LaGreca, Prinstein & Fetter, 2001; Mosbach & Leventhal, 1988; Schofield, Pattison, Hill & Borland, 2003; Sussman et al., 1990). Research has demonstrated further that perceived group norms play a key role in the way that group membership is related to behaviour: that is, people tend to behave in line with what they think is the behavioural norm among members of the relevant group (Terry & Hogg, 1996; Terry, Hogg & White, 1999). Furthermore, stronger identification with the group has been shown to result in greater consistency between the perceived norm and the individual's behaviour (Johnston & White, 2003; Schofield, Pattison, Hill & Borland, 2001; Smith & Terry, 2003; Terry & Hogg, 1996; Terry et al., 1999).

Prior research, however, relies heavily on self-reported data, obtained mostly through questionnaire methods. Although these assessments have contributed greatly to our understanding of human behaviour, their limitations have also been acknowledged. Self-report measures are vulnerable to response biases, such as the tendency to answer in line with societal norms or the investigator's expectations. Moreover, the use of self-report measures presumes that people are capable of analyzing their behaviour accurately. However, people may not be conscious of their own assumptions, nor can they always identify clearly the factors that influence their behaviour (Babad, Birnbaum, & Benne, 1983). Hence, even when people are willing, they may not be able to report relevant cognitions correctly.

Over the last decade, a number of reaction time tasks have been developed that provide ways to measure cognition indirectly, such as the Implicit Association Test (IAT: Greenwald, McGhee, & Schwartz, 1998), the (Extrinsic) Affective Simon task (AST: de Houwer & Eelen, 1998; EAST: de Houwer, 2003), and the go/no-go association task (Nosek & Banaji, 2001). The assumption underlying these tasks is that they activate *automatic* associations and thereby resist the typical biases present in questionnaire research. Application of these advanced measurement techniques is therefore expected to improve the predictive and construct validity of social psychological constructs (Stacy, Newcomb, & Ames, 2000; Fazio, 2001).

The present study aimed to apply implicit measures, in addition to self-report measures, to examine the relationship between group membership and health-risk behaviour. For this purpose, the study adopted a strategy based on the Balanced Identity Design, proposed recently by Greenwald and colleagues (2002). The Balanced Identity Design is developed to test predictions derived from the balance-congruity principle. This principle states that people tend to keep consistency within a triad of cognitive associations always including the self, a social group, and an attribute. More specifically, the balance-congruity principle claims that the strength and valence of any one of these three associations can be predicted from the strength and valence of the remaining two associations. For example, the extent to which a teenager associates him or herself with the group 'skateboarders' along with the extent to which he or she associates skateboarding with smoking, should predict the strength of his or her association of self with smoking. Importantly, the Balanced Identity Design has been developed such that the predictions can be tested with traditional self-report measures as well as with the currently available indirect measures.

Greenwald and colleagues (2002) based their work on cognitive consistency theories such as congruity theory (Osgood & Tannenbaum, 1955), cognitive dissonance theory (Festinger, 1957), and balance theory (Heider, 1958). The researchers aimed to integrate these existing theories into a so-called unified theory. The unified theory has also some notable similarities with social identity theory (Tajfel & Turner, 1979) and its continuer, self-categorization theory (Turner, Hogg, Oakes, Reicher & Wetherall, 1987). Both the unified theory and social identity/self-categorization theory aim to account for the relationships among constructs such as self-concept, social identity, and group behaviour. Moreover, both theories predict a consistency between *group-attribute* associations (e.g., stereotypes, group norms) and *self-attribute* associations (e.g., self-esteem, self-identity), which should develop in proportion to the strength of the *group-self* association (i.e., social identity). However, a primary difference between the two perspectives is that social identity/self-categorization theory has a tradition of using self-report measures, while the unified theory is particularly suited for the application of implicit measures (Greenwald et al., 2002).

Greenwald and his colleagues (2002) used the Balanced Identity Design to assess the strength of associations among the concepts of self, female (the social category), and positive (the attribute). The researchers tested the hypothesis that women who hold a strong self-female association (i.e., a strong female identity) as well as a strong female-positive

association (i.e., a positive attitude towards females), should hold a strong self-positive association (i.e., high self-esteem). Their studies demonstrated that the predicted consistency pattern could be revealed by using indirect measures (i.e., the IAT), but not with traditional self-report measures. The inconsistency in the self-reported data may be attributed to both response factors and introspective limits, which supports the idea of low predictive value of explicit cognitions in behavioural research (Greenwald et al., 2002).

5.1.1 The present research

The present research applied the Balanced Identity Design to assess students' cognitive associations among the concepts of self, college student identity, and binge drinking. It was decided to focus on binge drinking not only because this behaviour constitutes a health concern, but also because of its high prevalence among the current study population, namely university students (Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994). College students (i.e., university students who live on campus), therefore, formed the behaviourally relevant reference group of our study. Consistent with Greenwald et al. (2002), both implicit and explicit measures were used to study the associations among the target concepts. However, instead of the IAT, the current study used the Extrinsic Affective Simon Task (EAST) developed by de Houwer (2003) as the implicit measure.

In a typical EAST study, participants are asked to classify white and coloured stimuli, presented one by one on a computer screen, by pressing either a left or a right key. White stimuli have to be classified according to their meaning, and coloured words on the basis of their colour (e.g., blue versus green). Attitudes toward a concept can be estimated by presenting this concept (e.g., binge drinking) on the coloured trials and the associated valence (e.g., good versus bad) on the white trials. One then compares the reaction time for coloured trials in which the accurate response is similar to the “good” stimuli with the reaction time for trials in which the response is similar to the “bad” stimuli. If for the coloured stimuli, the “good” response is given more quickly than the “bad” response, one can infer that this person has a positive attitude towards binge drinking. Although the EAST was primarily developed as a tool to measure implicit *attitudes*, theoretically it could also be used to measure nonevaluative associations (de Houwer, 2003). For instance, to assess whether binge drinking is associated more strongly with “self” than with “other”, one can present white stimuli that

have to be classified as referring to self or to other, and coloured stimuli that represent the concept binge drinking.

The EAST has some advantages over the IAT. One major advantage is that the EAST does not need to involve more than one target concept. Whereas participants in the IAT have to discriminate between two different target concepts (e.g., female versus male), participants in the EAST discriminate between certain features (e.g., colour) within one stimulus. Hence, the EAST effect does not express *relative* association strength like the IAT effect, but relates exclusively to the specific target attitude. Furthermore, the IAT has been criticized for being a recodable task in that participants may recode the paired concepts into one target concept to make the task easier (de Houwer, 2003). As there are no pairs in the EAST, recoding is much less likely to happen with this task.

5.1.2 The study aim

The purpose of the present study was to test the applicability of the Balanced Identity Design to the topic of binge drinking among college students. Consistent with the balance-congruity principle, we tested the hypothesis that the strength of the *self-college student* association (i.e., social identity) along with the strength of the *college student-binge drinking* association (i.e., perceived behavioural norm) would predict the strength of the *self-binge drinking* association (i.e., self-identity). Specifically, we expected students to identify themselves highly with college students, to associate college students strongly with binge drinking, and to associate themselves with binge drinking. In addition, it was aimed to compare implicit (EAST) scores with outcomes on the explicit (self-report) measures.

5.2 Methods

5.2.1 Participants

Participants were recruited among first-year psychology students enrolled at the University of Queensland. Students received course credit for participation. To be eligible for participation, participants had to be at least 18 and a native speaker of English. A total of 57 students participated in the study. However, the data analysis included only students who reported to feel the strongest ties with college students compared to three control groups (i.e., surfers,

Christians, and hippies). A total of 43 students, 16 males and 27 females, reported to feel the strongest ties with college students. Their age ranged between 18 and 40. The mean age was 20.0 ± 3.62 .

5.2.2 Explicit measures

The explicit measure consisted of a short paper-pencil questionnaire.

Social identity. Identification with college students was assessed by four items based on a scale developed by Cameron and Lalonde (2001). Two items referred to the group's cognitive centrality (e.g., "The fact that I'm a member rarely enters my mind" 1 *strongly disagree*, 9 *strongly agree*) and two items referred to ingroup affect (e.g., "In general, I'm glad to be a member of this group"). The scores on two items were reversed so that a higher score always reflected stronger social identification. A sum-score for the four items was calculated (Cronbach's $\alpha = .70$).

Perceived norm. The perceived group norm regarding binge drinking was assessed with four items. Two items reflected an injunctive norm (e.g., "most people in my group expect me to binge drink") and two items reflected a descriptive norm (e.g., "most people in my group binge drink frequently"). Answers were given on 7-point scales (i.e., 1 *strongly disagree*, 7 *strongly agree*), except for one item that asked participants to state what percentage of the group frequently binge drinks on a 9-point scale (i.e., 10% - 90%). Scores on this last item were converted to a 7-point scale before a sum-score was calculated (Cronbach's $\alpha = .94$).

Self-identity. Self-identification with binge drinking was assessed with three items (e.g., "I think of myself as the sort of person who binge drinks" 1 *strongly disagree*, 7 *strongly agree*). One item was reverse scored. A sum-score for the three items was calculated ($\alpha = .78$).

Behaviour. As a measure of binge drinking, participants were asked to state how often they had been drunk within the last month. The 5 answer categories were: 1 *0 times*, 2 *1 time*, 3 *2 times*, 4 *3-5 times*, and 5 *>5 times*.

5.2.3 Implicit measures

Participants completed three EASTs, each measuring the association between two out of the three target concepts. The order in which the three tasks were completed was counterbalanced among participants.

Self-group association. The stimuli presented in EAST version 1 consisted of white words referring to “self” and “others” (i.e., me, myself, self, they, them, and others) and coloured words referring to four subgroups (i.e., college students, Christians, surfers, and hippies). The participants were instructed to press the left button for white words that refer to “self” and words written in blue, and to press the right button for white words that refer to “others” and words written in green.

Group-binge drinking association. EAST version 2 contained white words referring to “binge drinking” and “non-binge drinking” (i.e., drunk, pissed, alcohol, water, sober, and soft drink) and coloured words which were the same four subgroups as in EAST version 1. Participants had to press the left button for “binge drinking” and blue words, and the right button for “non-binge drinking” and green words.

Self-binge drinking association. The third EAST version showed white words referring to “self” and “other” which were identical to those in version 1, and coloured words that referred to “binge drinking” and “non-binge drinking” which were identical to the white stimuli in EAST version 2. Participants were instructed to press the left button for “self” and blue words, and the right button for “others” and green words.

Each EAST consisted of two practice blocks followed by four test blocks. During the first practice block only the white stimuli were presented and during the second practice block only the coloured stimuli. In the test blocks, both white and coloured stimuli were presented in random order (but never more than the same stimuli on three or more subsequent trials). Each white stimulus was presented twice during the practice blocks and three times during each test block. The coloured stimuli were presented twice in each colour during the practice blocks and three times in each colour during the test blocks. As a result, the first practice block consisted of 12 trials and the second practice block of 16 trials (EAST version 1 and 2) or 12 trials (version 3). Each test block contained 42 trials (version 1 and 2) or 38 trials (version 3).

The EASTs were conducted on a personal computer. Instructions, stimulus presentations, and recording of response latency and accuracy were controlled by E-prime v1.1 (Psychology Tools Software). A button box was used to respond on trials.

5.2.4 Procedure

The experiment took place in a computer lab. A maximum of four participants participated in each session. At the start of the session, participants were asked to take place behind a computer. The experimenter explained in brief the procedure and then asked the participants to complete the paper-and-pencil questionnaire. Completed questionnaires were put in a box. As soon as all participants had completed the questionnaire, participants were asked to start with the first EAST. Instructions were given on the screen. Participants were asked to raise their hand when they had finished the first and second EAST so that the experimenter could start-up the next task. When all participants had finished, they were thanked and debriefed both verbally and in a written format.

5.3 Results

5.3.1 Data analysis strategy

Our data analysis followed the statistical strategy suggested by Greenwald et al. (2002). This involved performing a two-step hierarchical regression analysis with one association as the dependent variable and the other two associations as the predictor variables. In our case, the self-binge drinking association formed the dependent variable while the predictors were the self-college student and the college student-binge drinking association. In line with Greenwald et al. (2002), the first step of our analysis included only the interaction effect of the two predictors, while in Step 2 the two main effects were added as separate predictors. The balance-congruity principle predicts that the data is explained entirely by the interaction term, shown in an absence of a statistically significant increment in variance on Step 2.

5.3.2 Results explicit measures

Descriptive data

A summary of the descriptive statistics is given in Table 5.1. Participants showed an overall positive identification with college students. The perceived binge drinking norm was generally high, whereas self-identification with binge drinking was overall modest to low. On average, participants reported having been drunk 2 to 5 times in the last month.

Table 5.1

Means, standard deviations, and correlations among the explicit measures

Variable	<i>M</i>	<i>SD</i>	1	2	3	4
1. Social identity	6.30	1.19				
2. Perceived norm	4.68	1.52	0.34*			
3. Self-identity	3.08	1.50	0.30	0.36*		
4. Binge drinking	3.23	1.46	0.25	0.37*	0.52**	

* $p < 0.05$, ** $p < 0.01$. *Note.* Social identity was assessed on a 9-point scale, perceived norm and self-identity on a 7-point scale, and binge drinking on a 5-point scale.

Multiple regression analysis

Table 5.2 shows the outcomes of the regression analysis of self-identification with binge drinking. In line with the procedures of Greenwald and colleagues, the interaction effect of social identity and perceived group norm was entered at the first step of the analysis. To avoid problems with multicollinearity between the main predictor effects and the interaction terms, scores on the predictor variables were mean-centered (Aiken & West, 1991). Entrance of the interaction term produced a significant proportion of explained variance ($R^2 = 10\%$) and a significantly positive beta ($\beta = .31, p = .044$). Addition of social identity and perceived norm as separate predictors at Step 2 resulted in a significant increment in variance of 21%. Inspection of the beta weights revealed a significant main effect of perceived norm ($\beta = .37, p = .014$). Thus, consistent with the balance-congruity principle (and SIT/SCT), perceived norm along with the strength of identification with the group predicted self-identification with binge drinking. However, inconsistent with theory, perceived norm also predicted self-identity independently of the strength of group identification.

Table 5.2

Hierarchical linear regression of self-identification with binge drinking

Step	Predictor	R^2	ΔR^2	β
1	Social identity x perceived norm	0.10	0.10*	0.31*
2	Social identity x perceived norm	0.30	0.21**	0.38**
	Social identity			0.17
	Perceived norm			0.37*

* $p < 0.05$, ** $p < 0.01$

The significant interaction between social identity and perceived norm was examined further using simple slope analyses (Aiken & West, 1991). As shown in Figure 5.1, the effect of perceived norm on self-identification with binge drinking was significant at one standard deviation above the mean on the social identity measure ($\beta = .76$, $t = 3.44$, $p = .001$), but not at one standard deviation below the mean (low identifiers: $\beta = -.01$, $t = -0.06$, $p = .96$).

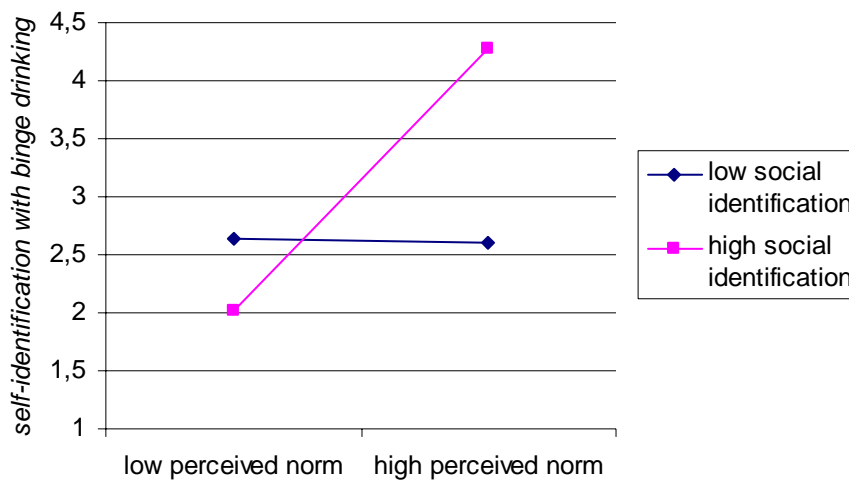


Figure 5.1 The interaction effect of social identity and perceived norm on self-identity

5.3.3 Results implicit measures

Due to experimenter error, two participants performed EAST version 2 twice and as a result lack data for EAST version 1. Data concerning their last completed EAST version 2 were discarded.

The data treatment procedures were comparable to those described by de Houwer (2002). For each EAST, mean reaction times on the coloured trials were calculated for all stimulus-response combinations separately. Reaction times for incorrect responses (on average less than 10% of the trials) were excluded from analysis. Reaction times below 250 ms and above 2500 ms were recoded to 250 ms and 2500 ms respectively. For each EAST task, an EAST score was calculated by deducting the mean reaction time on trials with the expected congruent combination of stimulus and required response (i.e., self/college student, binge drinking/college student, and self/binge drinking) from the mean reaction time on trials

with the expected incongruent combination (i.e., others/college student, non-binge drinking/college student, and others/binge drinking). The results are summarized in Table 5.3. Finally, the mean reaction times were further analyzed with a repeated measures analysis of variance (ANOVA) with the factors response (left key versus right key), stimulus word (depending on the task either type of subgroup or type of drinking stimulus), and task order (order in which the 3 EASTs were performed).

Table 5.3

Mean reaction times and standard deviations in milliseconds for the implicit measures

EAST	Target concept	Congruent response	Incongruent response	EAST-score
		Mean RT (<i>SD</i>)	Mean RT (<i>SD</i>)	Mean RT Δ (<i>SD</i>)
1	College student	Self 554 (86)	Others 568 (94)	14.0 (76.9)
2	College student	Binge drinking 611 (115)	Non-binge drinking 606 (131)	-4.2 (120.8)
3	Binge drinking	Self 573 (89)	Other 559 (90)	-13.8 (54.8)

On the EAST assessing social identity, participants were faster overall in the college student-self condition than in the college student-other condition, reflected in a positive EAST-score (See Table 5.3: $M = 14.0$, $SD = 76.90$). Hence, the EAST-score suggests an overall positive social identification with college students. However, a paired t-test showed that the difference in reaction time was not significant, $t(40) = 1.16$, $p = .25$. A 2 (response) \times 4 (subgroup) \times 3 (task order) ANOVA revealed no main effects for response, $F(1, 38) = .91$, $p = .35$, subgroup, $F(3, 36) = 1.18$, $p = .33$, or task order, $F(2, 36) = 1.77$, $p = .18$. However, the ANOVA did show a significant interaction effect between subgroup and response, $F(3, 36) = 3.79$, $p = .018$. A closer examination of this interaction revealed that when the presented stimulus was college student or Christian, participants were faster at giving the “self” compared to the “other” response, while if the presented stimulus was hippie or surfer, participants were relatively faster at giving the “other” response.

On the EAST assessing perceived binge drinking norm, participants were slightly faster overall in the college student-non binge drinking combination, resulting in a negative

EAST-score ($M = -4.2$, $SD = 120.80$). However, a paired t-test showed that the EAST-score was not significant, $t(42) = .228$, $p = .82$. A 2 (response) x 4 (subgroup) x 3 (task order) ANOVA revealed no main effects for response, $F(1, 40) = .93$, $p = .34$, or task order, $F(2, 40) = 1.90$, $p = .16$, and no interaction effect between subgroup and response, $F(3, 38) = 9.61$, $p = .98$. However, a significant main effect was observed, $F(3, 38) = 4.77$, $p = .006$. Participants responded generally slower to the stimulus college student than to the other subgroup stimuli.

The negative value of the EAST-score for the self-identification with binge drinking task ($M = -13.80$, $SD = 54.80$) indicates that participants were faster overall at the binge drinking-other condition than at the binge drinking-self combination. However, once again the difference in response latencies was not significant, $t(42) = 1.65$, $p = .11$. The 2 (response) x 3 (drinking stimulus) x 3 (task order) ANOVA revealed no main effect of response, $F(1, 40) = 2.44$, $p = .13$, stimulus word, $F(2, 39) = .41$, $p = .67$, or task order $F(2, 40) = 1.27$, $p = .29$, and no interaction effect between subgroup and response, $F(2, 39) = 1.65$, $p = .21$.

Multiple regression analysis

Since none of the EAST-scores, which should form the variables for the two-step regression model, were significant, there was no purpose in conducting the multiple regression analysis.

Correlation with explicit measures

None of the three EAST scores correlated significantly with its corresponding explicit measure (Pearson's r s were respectively: -0.06, 0.13, and -0.17).

Reliability of the EAST

Following de Houwer (2003), the split-half reliabilities of the three EAST-effects were assessed by calculating the EAST-scores on the first two test blocks and on the last two test blocks separately. The correlations between the first half and the second half EAST-scores were low and in most cases non-significant; EAST 1: $r = .18$, $p = .29$; EAST 2: $r = .35$, $p = .02$; and EAST 3: $r = .29$, $p = .07$. Hence, our implicit measures showed very low internal consistency and thus were not reliable enough to uncover inter-individual differences in association strength.

5.4 Discussion

The aim of the present study was to examine the interplay among group membership, group norms, and health-risk behaviour by using both implicit and explicit measures. The study adopted a Balanced Identity Design, a method proposed by Greenwald and colleagues (2002), to assess students' cognitive associations among the constructs of the self, college student identity, and binge drinking. In line with the balance-congruity principle, we expected to predict the strength of students' association between self and binge drinking from the strength of their associations between self and college students and between college students and binge drinking. An adaptation of the Extrinsic Affective Simon Task (EAST: de Houwer, 2003) was used as the implicit measurement task.

Our explicit data demonstrated partly the consistency pattern as predicted by the balance-congruity principle. As expected, students' self-identification with binge drinking was a function of the perceived drinking norm among college students and the degree of identification with this group. Further analysis of the interaction between social identification and perceived group norm revealed that a higher perceived norm led to higher self-identification, but only for high group identifiers. According to the balance-congruity principle this interaction should predict self-identification with binge drinking fully. However, in addition to a significant interaction effect, our explicit data revealed a main effect of perceived group norm. Hence, students' self-concept in terms of binge drinking was also determined by the perceived group norm *independently* of the strength of identification with the group. A possible explanation for this unexpected finding is that all our participants identified positively with college students. Hence, the variation in strength of group identification was rather small and group identity might therefore only partly have mediated the effect of group norm on self-identity.

The self-reported levels of self-identity were generally low. However, this may well be due to response bias. Students might have been reluctant to admit that binge drinking, with its negative connotations, is a part of their self-concept (which would illustrate precisely why implicit measures may compliment self-report measures when assessing potentially sensitive issues). However, perceived norm and social identification interacted to predict level of self-identity. As can be seen from Figure 5.1, for high group identifiers with high perceived norms, the level of self-identity is actually quite high.

In contrast with the study of Greenwald et al. (2002), our implicit data did not provide support for the predictions of the balance-congruity principle. However, the failure to find support for these predictions may be due to problems with the implicit task used. Indeed, the scores on the three EAST tasks could not be entered as predictors in the multiple regression analysis because the observed EAST scores (i.e., the indices for association strength) were not significant. Participants did not respond significantly faster in one response condition than another. Only the data of the EAST assessing the self-college student association showed some differences in reaction time in the expected direction. An ANOVA revealed that the students were faster in combining college students (and Christians) with self, which would indicate positive identification with this group. However, a split-half reliability analysis revealed that our adaptations of the EAST had very low internal consistencies. Therefore, it has to be concluded that our results are unreliable. Reliability problems with the EAST have been reported before (cf. Fazio, & Olsen, 2003). Even de Houwer, creator of the EAST, has acknowledged that EAST scores may not be reliable enough to detect inter-individual differences (de Houwer, 2003). Yet, our adaptations of the measure did not even find significant differences for a group of people. Of course it could be argued that our sample was rather small ($N = 43$). In addition, EAST version 1 and 2 presented stimuli representing four subgroups, therefore the number of trials with the target subgroup (i.e., college student) in these versions were relatively small ($n = 24$). Still, EAST version 3, which assessed the association between the self and binge drinking, presented only coloured stimuli that related to the target concept, yet did not produce a significant EAST score. Another limitation of our study is that participants had to complete three EASTs that presented not only different coloured stimuli but also different white (attribute) stimuli. Hence, the response buttons were allocated to different attributes throughout the experiments which could have weakened the effects.

On a theoretical point, it is important to note that the original EAST was developed as a measure of implicit *attitudes*. For this purpose, the task combines semantic concepts with negatively and positively valenced attributes. In the current study, however, the task was adapted to assess associations between two semantic concepts, for example, college students with binge drinking. Even though the EAST can be used to do this technically, one may expect it to be more difficult to assess semantic associations than affective evaluations. Affective evaluations are assumed to be instant and fast, and can occur outside of people's

awareness (Bargh, Chaiken, Raymond & Hymes, 1996; Fazio, 2001). Implicit tasks such as the Emotional Stroop and the EAST make use of the fact that evaluative reactions appear even though people are asked to ignore the meaning of a presented concept. Yet, it might require more (than just presenting a word) to elicit a semantic association with a particular concept. In a recent study (Teige, Schnabel, Banse & Asendorpf, 2004), adaptations of the EAST were used to assess implicit self-concepts. Participants were presented with stimuli referring to 'me' and to personality traits such as 'shy'. These measures also showed very low internal consistency. The researchers give various possible explanations for the low reliability of the EAST, among them the problem of assessing semantic associations instead of affective evaluations. They suggest using a discriminative feature other than colour that requires more semantic processing of the stimulus (Teige et al., 2004). Furthermore, they point at prior EAST studies which had success with a priming-phase preceding the task. Along with Teige et al. (2004), we believe there is still potential for the EAST as an implicit measure of semantic associations. However, further development of adaptations of the measure is needed so that they reach acceptable reliability levels.

Problems with reliability and validity are not unique to the EAST (Fazio & Olsen, 2003). Social cognition research on implicit measures is clearly still in its infancy. Nevertheless, it is certainly a field that is progressing and knowledge of the underlying mechanisms of implicit measurement techniques is accumulating rapidly (Fazio & Olsen, 2003). Implicit measurement offers a unique insight in human cognition, which in turn may provide a better understanding of human behaviour. Therefore, it is important to continue research in this field.

Chapter 6

General discussion

6.1 Introduction

The present thesis explores the role of identity as a social psychological determinant of health-risk behaviour in adolescence. It reported four empirical studies that examined different aspects of adolescents' identity across three risk behaviours: tobacco, marijuana, and alcohol use. In this final chapter, the overall findings of these studies will be discussed as well as their strengths and limitations. Further, the implications of the findings for health promotion are discussed and suggestions will be proposed for further research.

6.2 The findings

Although prior research has linked adolescent peer group identification to health-related behaviour, these are studies primarily based on American school samples and no such investigation has previously taken place in Denmark. Therefore, one of the main objectives of the first study (chapter 2) was to see whether a link between crowd affiliation and health-risk behaviour exists among Danish adolescents. The findings of this cross-sectional analysis showed that this is clearly the case. First of all, relevant identification groups among Danish adolescents were determined. Secondly, involvement in substance use differed considerably between these groups. Identification with the pop, skate/hip-hop, techno, and hippie reference groups was associated with considerably higher risks for smoking, marijuana use, and drinking to intoxication, while identification with the other four groups, i.e., sporty, quiet, computer nerd, and religious, was associated with lower risks. The differences between groups were most evident for smoking and least obvious for excessive drinking. Uniquely, the study also examined the impact of multiple group identification. The results of this analysis provided additional proof of the importance of group identification to adolescent health-risk behaviour; identification with multiple high-risk groups increased the probabilities for risk behaviour whereas identification with multiple low-risk groups lowered adolescents' chance of being involved in these behaviours. Another major aim of the first study was to investigate the assertion of social identity/self-categorization theory that individuals tend to adopt the behavioural norms of the group they belong to. The results showed that adolescents were indeed more likely to engage in smoking and marijuana use if they perceived these

behaviours to be typical for group members. Moreover, their perceptions of the group norm showed to account largely for the relationship that was found between group identity and behaviour, meaning that adolescents who identified with high-risk groups were more likely to perceive risky behaviour to be normative and subsequently more likely to show behaviour in line with this norm.

The finding that perceived norms mediate the group identity-behaviour relationship is consistent with premises of social identity/self-categorization theory and may explain why risk behaviours are relatively common among certain groups while uncommon among other groups. However, homogeneity in behaviour within groups could also be explained by alternative processes. For instance by social selection which suggests that similarity among group members is the result of individuals selecting groups whose norms and values are similar to their own. To find out whether group identification actually produces norm-consistent behaviour as argued by social identity/self-categorization theory, longitudinal data on smoking behaviour was analyzed in the second study (chapter 3). The central question that this prospective study addressed was whether group identity predicts changes in smoking over time. The results were in line with expectations; group identity predicted changes in smoking behaviour in the direction of the group norm, that is, adolescents were almost three times more likely to start smoking if they identified with a high-smoking norm group compared to identifiers of low-smoking norm groups. Furthermore, adolescents whose behaviour was inconsistent with the smoking norm of the group were about twice as likely to change either behaviour or group identity than adolescents whose behaviour matched the group norm. In sum, these findings provide further support for a significant predictive role of group identity in health-risk behaviour. In addition, the study provided information on the stability of group identification. Adolescents' group identity appears to be fairly stable over time; more than half of the respondents showed a positive identification with the same group one and a half years later. Identification with a high-risk group, however, appeared to be less stable than identification with the low-risk groups.

The third study (chapter 4) addressed alcohol consumption. As mentioned, the results of the cross-sectional analysis in chapter 2 revealed that adolescents' excessive alcohol consumption is not as strongly associated with group identity as with smoking and marijuana use. It was argued that this might be due to the high prevalence and acceptance of binge drinking among Danish teenagers which may make this behaviour less useful as a group-

distinguishing attribute. However, drinking may still be attached to a more “personal” identity. The goal of the third study was to investigate the contribution of self-identity in addition to social (group) identity in the prediction of alcohol consumption. Furthermore, more nuanced outcome variables of drinking were used (i.e., ordinal measures of alcohol consumption and drunkenness instead of dichotomous drunkenness). Self-identity is believed to be, at least partly, shaped by past experiences. Hence, to find out whether identity is not merely the product of past drinking behaviour but actually predicts future behaviour, it is necessary to take adolescents’ earlier consumption patterns into account. Therefore, prospective analyses were conducted in addition to cross-sectional data analyses. The results showed a significant contribution of self-identity and a larger independent contribution of social identity to drinking behaviour. Both effects were still present after controlling for past drinking behaviour. Thus, adolescents’ identification with peer crowds proved to be relevant also to their drinking behaviour, more so than the extent to which they consider high alcohol consumption to be an important part of their self-concept.

The fourth and final study (chapter 5) employed a totally different methodology to examine the interplay among self-identity, social identity, and perceived norms regarding binge drinking. In addition to a written questionnaire, a reaction time task, namely the Extrinsic Affective Simon Task (EAST), was used to assess automatic associations among concepts related to self, a college student identity, and binge drinking. Analyses of the self-reported data revealed that students were more likely to self-identify with binge drinking if they perceived binge drinking to be common among college students. Moreover, a significant interaction was found between social identity and the perceived group norm which indicated that the effect of perceived group norms on self-identification with binge drinking was largest for those students who strongly identified with the group. Thus, while in the previous chapter independent predictive effects of self-identity and social identity were found, the findings of the final study suggest that self- and social identity are not entirely independent constructs after all. Earlier, in chapter 4, it was theorized that self-identity as conceptualized in the present thesis may refer essentially to an individual’s membership with the group of people who perform the behaviour of interest. From the last study it appears that when a specific social identity is salient, like in this case being a college student, self-identity may refer to the internalized norms of that group. Hence, self-identity may always involve reference to some kind of social group, either to the group that engages in the behaviour or to the group which

is salient at the moment. The implicit data should have brought more insight in people's cognitions related to self, group, and binge drinking existing at the implicit level. Unfortunately, the applied implicit measures did not produce valid information. The scores of the adaptations of the EAST showed insufficient internal consistencies which impeded further analysis.

6.3 Research limitations

The present thesis, and the empirical studies that it builds on, has its strengths but certainly also some limitations due to the research methods employed. Some methodological issues have already been considered in the discussion sections of the preceding chapters. However, a more in-depth discussion of potential biases and the implications of these biases for the reported findings and conclusions will be given here.

6.3.1 Internal validity: (non) response and information bias

Although MULD (Monitoring af Unges Livsstil og Dagligdag) is based on a large population-based sample, non-response may have biased the representativeness of the data. One third of the adolescents selected for the baseline data collection did not participate in the study. Some of those may have been unable to take part. Ninety-four of the 6000 distributed questionnaires were returned undelivered due to an unknown or invalid address. In addition, a number of adolescents may have been away at the time of the study. Many Danes choose to spend time abroad after finishing high school which may explain to some extent the lower response-rate among out-of-school youth. However, the largest part of the non-response is without doubt attributable to an unwillingness to participate. Despite efforts to increase participation by awarding prizes and sending reminders, MULD response rates have been declining over the years. This unfortunate trend may be a result of increasing competition from the rising number of surveys during recent years. Non-response in itself does not have to be a problem as long as the non-responders do not substantially differ from those who did respond to the questionnaire. However, as in most survey research, this is not quite the case. Based on existing population figures, we can conclude that at least males, out-of-school youth and Muslims are underrepresented in the MULD studies. Further, if to rely on a non-

response bias analysis conducted on the MULD 2000 survey, one may expect smokers to be somewhat underrepresented (Nielsen et al., 2002). This assumption is further motivated by the fact that relatively fewer smokers than non-smokers responded to the follow-up questionnaire. It is difficult to say in what other ways non-responders might differ from responders and how this may have biased results. Possibly, non-responders were less interested in the topic of health than the responders. A non-response bias analysis could have revealed such differences, but has not been carried out. Moreover, the data analyses could have controlled for these differences which would prevent drawing potentially incorrect conclusions.

Another cause of concern when interpreting the data is potential response bias. Like any kind of research relying on self-report measures, the validity of the findings depends largely on the honesty and accuracy of the responders. As mentioned before, results may be biased because respondents may attempt to present themselves more favourably or in other ways different from reality. Besides, respondents may lack enough introspection in order to report the required information accurately. An additional problem with postal surveys is the researcher's lack of control over the context in which questionnaires are being completed. Situational factors such as background noise and the presence of other people may have further diluted the validity of the reported information. Not to mention the fact that one cannot even be sure that the questionnaire has been completed by the intended person and not by somebody else. The final study took place not only in a more controlled setting, it also aimed to supplement self-reports with implicit data which are assumed to be less sensitive to response bias. Unfortunately, however, the scores of the applied implicit task showed very low internal consistencies and thus could not be used for data analysis.

One more threat to the validity of the reported findings is potential information bias. Because respondents were asked first about their social identity and later about their behaviour, an increased awareness of one's social identity may have triggered responses to the behavioural items that are more consistent with this identity. As a result, high-risk group members may have over-reported health-risk behaviour while members of low-risk groups may have underreported these behaviours. Likewise, the questionnaire items on behaviour may have influenced adolescents' later responses to the self-identity items. Hence, differential misclassification may have led to an overestimation of the strength of association between adolescents' identity and health-risk behaviour. Although an effort was made to

minimize this potential bias by spreading the relevant items out over the questionnaire, one cannot rule out the possibility that information bias has inflated the results presented in this thesis.

6.3.2 Measurement bias

The validity of the reported findings should also be evaluated carefully in light of the measures and analyse techniques that were applied. A serious limitation of the studies based on MULD data is their reliance on single-item scales as measures for the self- and social identity constructs. Single-item measures are as a rule considerably less reliable than measures based on multiple items. Especially the assessment of self-identity was weak as seen from the low inter-item correlation in the follow-up questionnaire. Besides a low reliability, which could have been improved by including more items, the construct validity of the self-identity measure is seriously threatened by the lack of theoretical agreement on this construct in the social psychological literature. In the absence of a clear definition of self-identity, it is practically impossible to assess whether our measures reflect the concept accurately. The measures for group identity and group norm were not based on standardised items either. However, at least the face validity of these measures, judged on appearance, seems to be all right. With respect to the group identity measure, it has to be noted that the list of reference groups is not assumed to be flawless nor complete. Yet, the fact that more than 70% of the respondents identified with at least one group provides some indication that the list consisted of relevant and familiar groups. Moreover, the fact that the group identity measure proved to be useful in distinguishing adolescents high at risk for substance use from adolescents low at risk pleases for the value of this simple measure. Still, more information on the studied groups would be desirable. For instance, it would be informative to know more about the social status and permeability of the various groups as well as the exact function that health-risk behaviour serves in each group. Health-risk behaviour may serve different functions (e.g., to appear more mature, to react against conventional norms, or to forget about problems), which may imply for some groups more than for others. Another relevant issue, which has been debated also by other researchers (e.g., Stone & Brown, 1999; Sussman, Unger & Dent, 2004), is whether adolescents who report to identify with a certain group also spend time with people of that group or whether they merely affiliate with the lifestyle of the group. As was pointed out in the introduction, crowd membership does not require direct

contact with other members of the same crowd. However, for a full understanding of the social processes underlying the group identity-behaviour relationship, it would be important to know how much direct contact exists between group members.

To safeguard the statistical validity of the study findings, standard statistical procedures were followed as much as possible. The analyses were conducted with SPSS software and the cut-off points for significance were put at 0.05. However, as this thesis does not deal with replicate studies, inevitably decisions had to be made of which the appropriateness is debatable. In nearly all studies, regression analyses were used to describe and quantify the relationship between identity and behaviour. In order to simplify interpretation of the data in the first two studies, scores on the outcome variables were dichotomised (e.g., smoker versus non-smoker) as were the scores on the group identity measure (i.e., positive versus negative identification with the group). As consequence, however, nuances in behavioural and identity variation were lost. An additional drawback of dichotomising group identification is the exclusion of data from respondents with no positive group identification or, in study two, multiple group identifications. Further, one could argue that the decision to put the cut-off point for positive identification at ≥ 4 is rather arbitrary. In the last two studies, group identification was not dichotomized but instead entered in the regression model as a continuous variable (a low score indicating weak identification and a high score strong identification with the group). By doing so, all respondents could be included in the analyses. It is difficult to say which data treatment reflects reality better; do adolescents identify with youth crowds to a certain degree or is it for them more a matter of “all or nothing”? Either way, when one compares the results of the first study (chapter 2) with the outcomes of the third study (chapter 4), one may conclude that, at least for alcohol use, the two analysis strategies reveal similar patterns.

6.3.3 Causality and confounding

The common rationale for studying variables related to high-risk behaviour is that when these variables are identified they can be targeted with the aim to achieve behavioural change. However, behavioural change is only likely to be achieved if there is a *causal* relationship between the studied variable, in this case identity, and the behaviour. For a relationship to be causal, three conditions have to be met: 1) there is a statistically significant association between the two variables, 2) there is a time order such that the independent variable

preceded the dependent variable, and 3) the association cannot be attributed to a third variable. Given the significant associations that were found between adolescents' self-reported identity and health-risk behaviour, and assumed that these were not produced entirely by the potential biases discussed in the previous paragraphs, we may consider the first criterion to be met. More difficult, however, is to determine whether the second criterion is fulfilled. The potential reciprocal nature of the identity-behaviour relationship means that causality can go in both directions. To establish the temporal order of the found associations requires data gathered across at least two points in time. For this reason, both the second and the third study employed a prospective design. The results of the longitudinal analyses strengthen the evidence for a causal relationship between identity and health-risk behaviour. Although it should be noted that it would have been recommendable to conduct more measurements across time in order to obtain a better picture of the causal process. Furthermore, the respondents were quite old at baseline (16 - 20 years) so that there was not as much space for behaviour change as there would have been with a younger sample.

Finally, a true causal relationship implies that the found association cannot be explained by confounding, that is, another variable that is associated with the studied variable is the actual predictor of the outcome variable. This requirement is by far the most complicated to fulfil. Adolescents' decision to engage in health-risk behaviour is unlikely to be caused by one single factor. In contrast, this behaviour is most likely the result of a combination of several risk and protective factors that often interrelate. The numerous potential confounders make it very difficult, if not impossible, to distract the true causal effect of identity. The best way to deal with potential confounding, however, is to control for potential confounders in the data analysis. Since the studies presented in this thesis controlled for only a limited number of potential confounders, namely gender, age, and time spent with peers, one has to be very careful with drawing conclusions on causality. The possibility of residual confounding in the reported studies can certainly not be dismissed. Both individual characteristics as well as contextual features (e.g., the school and family environment) may have confounded the reported associations. For example, adolescents who score high on the personality trait "sensation seeking" may have been more prone to engage in health-risk behaviour as well as to develop "high-risk identities". Efforts to alter identity perceptions may be fruitless in such case because the real cause for adverse behaviour lies within other factors. However, it is also possible that identity serves an intermediating link between these

other (more distal) factors and health-risk behaviour. For instance, adolescents who grow up in an unsupportive family environment may be more likely to engage in risky behaviours exactly because these youngsters tend to affiliate with high-risk peer groups (Schulenberg & Maggs, 2001). Yet another possibility is that identity operates as a moderator in the causal pathway, namely it may decrease or increase the impact of a more distal factor on health-risk behaviour. However, since the many possible scenarios have not been studied in this thesis, uncertainty about the true causal process remains. Hence, the validity of the findings and conclusions presented here should be judged carefully, taking alternative explanations into account.

6.4 Implications for health promotion

The research limitations addressed above indicate that more research is warranted before definite conclusions regarding the implications of the findings for health promotion practice can be drawn. However, baring the limitations in mind, I do believe that with some caution a few recommendations can already be given.

A lesson that can be learnt from previous efforts to prevent health-risk behaviour among young people is that the use of sound theory and planning is essential to programme effectiveness (Kok, Schaalma, Ruiter & van Empelen, 2004). Interventions that provide young people merely with information on the risks of certain behaviour, for instance, have not resulted in desired behaviour change (Tobler, 1992). Neither have evaluations of programmes designed to build adolescents' self-esteem showed strong effects (Donaldson, Graham & Hansen, 1994; Tobler, 1992), nor programmes that teach youngsters skills to resist direct peer pressure (“just say no”) (Donaldson et al., 1994; Leventhal & Cleary, 1980). However, programmes that take a more comprehensive social influence approach have shown to work to some extent (e.g., Hansen & Graham, 1991; Johnson et al., 1990). Particularly relevant in this respect are so-called social norm interventions. Research shows that adolescents are influenced more by what they think their peers are doing than by what peers are actually doing (e.g., Urberg, 1990). Social norm interventions aim to correct perceptions of the prevalence of risk behaviour among peers by providing adolescents with accurate figures. The findings of the present thesis show that perceptions of the behavioural

norm of one's peer group have a strong effect on adolescents' behaviour and therefore support a social norm approach. More specifically, a social norm approach that incorporates the notion of distinct peer groups by targeting perceived norms regarding *specific* youth crowds seems a promising approach for future health interventions.

There has been no tradition of designing health promotion programmes for young people that target identity as such. From an identity perspective, young people engage in activities that fit the image of the kind of person they are or want to be. Hence, an identity approach would take into account the developmental needs of adolescents and the functions that health-risk behaviour serves in that respect. Although the focus may not have been on identity per se, aspects of identity appear in many programmes. Interventions have often attempt to persuade people to behaviour change by exposing them to health messages that are presented by people who share identity with the target audience. This strategy is based on research (and theories such as the elaboration likelihood model: Petty & Cacioppo, 1986) that shows that people are more likely to be persuaded by messages that come from sources with which they identify (Mackie & Queller, 2000). However, the use of appealing message sources without much contents (e.g., strong arguments) has been criticized for leading only to temporarily change (cf. Mackie & Queller, 2000). Moreover, the findings of this thesis suggest that identity aspects may deserve more explicit attention in health promotion. For instance, adolescents could be taught about the ways in which group stereotypes affect their thinking and thereby their acting. School programmes could be created that include class discussions to help adolescents recognize these effects. Furthermore, interventions could be developed that attempt to influence attributes of group prototypes. For example, by reinforcing and popularizing the stereotypes that are desirable but still salient to young people, like being an individual, being more mature, or being a 'sporty' person by not engaging in health-risk behaviour. However, program makers should bear in mind that group identification also serves many positive developmental functions such as identity formation and friendships. Interventions that are insensitive to these issues and simply "attack" adolescents' identity may prove counterproductive as it may cause resistance among the target group. Instead, interventions may point at alternative ways to distinguish oneself as a group member, for example with clothing, music, and so on.

So far, we have discussed interventions that target the individual. However, identity perceptions, although being personal, are shaped largely by one's social environment.

Therefore, health promotion efforts might also aim to change environmental factors. The media (television, radio, internet, etc) comprise a huge part of the social environment adolescents grow up in. The way the media chooses to portray health-risk behaviour may shape and reinforce existing lifestyles and stereotypes. For instance, movie makers often use risk behaviour to provide actors with a certain image. Likewise, the marketing strategies of tobacco and alcohol industries often include the use of stereotypes to brand products to youth subcultures. Although little research has been done to document the effect of the media on risk behaviour among teenagers, some evidence exists that smoking in the media influence social norms (Wakefield, et al., 2003). Hence, media sources may also be utilized for health promotion purposes. Programme developers could use the media to break stereotypes, to depict pro-social norms, and to portray healthy or non-risky behaviour more favorably.

The findings of the present thesis also brought up some general issues that are relevant to the development and implementation of programmes for adolescents. Identity perceptions were found to be predictive of adolescent smoking, marijuana use, as well as alcohol consumption. Since it will be more efficient to concentrate on identity as a common predictor instead of developing separate programmes for specific behaviour, programme designers may want to take a broad focus, targeting multiple risk behaviours at once. On the other hand, the findings indicate that multiple messages are needed that appeal to the members of the various subcultures. Finally, as mentioned before, health promotion efforts should start at an early age. Research has shown that younger adolescents are more susceptible to peer influence than older adolescents (Brown, Eicher, & Petrie, 1986). Moreover, identity is still largely to be shaped in early adolescence.

6.5 Suggestions for further research

The findings of this thesis may improve our understanding of the social psychological processes underlying adolescents' motivations to engage in health-risk behaviour. However, given the limitations of the present studies, more research on identity as a determinant of adolescent health-risk behaviour is obviously needed. In addition, research is needed on the application of an identity approach in health promotion interventions. Recommendations for both research domains will be presented here.

6.5.1 Research on the determinants of behaviour

The current findings and their importance to public health call for further exploration of the role of identity in adolescents' behavioural decision making. Preferably, studies will be conducted that follow a younger sample over a longer period of time and, if possible, cover the transition between schools or employment. Furthermore, future research should seek to apply better measures of the identity construct, especially regarding self-identity. Researchers may aim to combine quantitative data with more in-depth qualitative data. In addition, they may attempt to complement self-report measures with implicit measures since measures of automatic associations may provide a more accurate reflection of cognitions that are sensitive to response bias. However, research on implicit measures is still in its infancy, and more work also in this field is needed so that these measures can be successfully applied to the current topic.

More research is also needed on the link between self-identity and social identity. Research on self identity and social identity has developed as separate lines of research. Yet, the results of this thesis indicate that the two are not entirely independent constructs. It would be theoretically interesting to further analyze the relationship between self- and social identity and their joined effects on adolescent behaviour.

Research on identity, however, should not be conducted necessarily in isolation from research on other determinants of health-risk behaviour. A number of social psychological models have been developed to explain and predict individual behaviour, with the theory of planned behaviour being probably the most commonly applied model to the health domain. As described earlier, the theory of planned behaviour assumes that behaviour is a function of people's intention to perform the behaviour and intention, in turn, is determined by people's attitudes, subjective norms, and perceived behavioural control over the behaviour (Ajzen, 1988). The model has found on average to explain about one third of the variance in people's behaviour (Armitage & Conner, 2001; Godin & Kok, 1996). Hence, there is still two-thirds of variance left to be explained by other factors. Incorporation of identity factors may improve the explanatory and predictive value of these models when it comes to adolescent behaviour. Since general behavioural models do not include the concept of identity, unique developmental aspects of adolescence might be overlooked. Furthermore, models like the theory of planned behaviour have been criticized for putting too much weight on conscious and rational decision making processes by assuming that all behaviour is intentional (e.g.,

Verplanken, Aarts, van Knippenberg & Moonen, 1998). Researchers have argued that behaviours that are performed at a regular basis (e.g., smoking, drinking) become habitual and thereby may be performed without conscious and intended thought. As a result, intentions become a poor predictor of behaviour (Verplanken et al, 1998). In contrast, the effect of (self-) identity may even strengthen since repeated performance increases the likelihood that the behaviour comprises an important part of the self-concept (Charng, Piliavin & Callero, 1988; cf. Terry, Hogg & White, 1999). The present thesis did not attempt to study identity in relation to other social cognitive determinants like attitudes and subjective norms. Therefore, future research should investigate the linkage of identity with these more established behavioural determinants.

6.5.2 Intervention research

As outlined above, further research on the determinants of adolescent health-risk behaviour will ideally lead to the development of new theory that takes better account of identity issues. However, even if new theory is developed, the adoption and implementation of innovative interventions based on novel theory cannot be taken for granted. It is a common fact that there exists a gap between health promotion research and practice. Research is therefore needed that aims to bridge findings and health promotion practice. A first step is to find out how the present findings can be used in programmes that aim to reduce health-risk behaviour among young people. The translation of theory into actual programme material and activities is a challenging task for both researchers and practitioners (Kok et al., 2004). Issues that need to be considered are the contents of the message, how they should be delivered, by whom, and for how long period of time. Furthermore, research suggests that interventions that focus their efforts more broadly, including various elements of the community such as the school, family, and other institutions are may be most successful (e.g., Johnson, et al., 1990). An important question is thus how an identity approach can be integrated in these wider community-based programmes. Besides a carefully planning, evaluation of intervention programmes is essential to the advance of evidence-based interventions (Nation et al., 2003; Tobler, 1992). Thus, information needs to be collected on the implementation and effectiveness of future programmes that use an identity approach to prevent young people from engaging in risky behaviours.

6.6 Conclusion

This thesis investigates the relationship between adolescents' identity and health-risk behaviour. Insights in this relationship could inform health programmes that aim to prevent or reduce risk behaviour among young people. The findings of the four empirical studies in this thesis suggest that identity factors, in particular those related to peer group affiliation, may contribute to health-risk behaviour in important ways. First of all, the findings show a strong association between adolescents' self-reported social group membership and health-risk behaviour. The data further show that this association is mediated by adolescents' perceptions of group normative behaviour. Moreover, the findings demonstrate that adolescents who identify with multiple groups with similar norms are more likely to behave according to the norm than those who identify with only one group. In addition, the data of two prospective studies provide evidence that identification actually may lead to behavioural change in the direction of the group norm. The results hold promises for health promotion programmes which may benefit from greater recognition of the role of youth crowds and identity development in adolescents' behavioural decision making. However, due to the methodological limitations of the present studies, some caution regarding the interpretation of the findings and conclusions is warranted. Various sources of potential bias, in particular those related to the applied measures and possible confounding, raise uncertainty about the validity of the findings. Furthermore, several relevant questions remain unanswered by the present research. Therefore, one has to conclude that further investigation is required before definite conclusions on the findings and their implications can be drawn. Besides more research on identity as a determinant of adolescent health-risk behaviour, research is also needed that focuses on the application of the findings in health interventions. Hopefully, the present thesis inspires further research in these directions.

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Summary

Adolescence is a critical period with respect to the onset of a range of health-risk behaviours. At the same time, adolescence is a crucial period for identity development. This thesis addresses the relationship between the two by examining the role of identity as a social psychological determinant of adolescents' engagement in risk behaviours such as smoking, marijuana use, and (excessive) alcohol consumption. Special attention is given to adolescents' social or group identity derived from affiliation with specific peer groups. The thesis is made up of six chapters; an introduction (chapter 1), four empirical studies (chapter 2-5), and a general discussion (chapter 6).

The first chapter presents an outline of the theoretical framework and the research methodologies employed. Core theories for this thesis are theories on identity, in particular social identity/self-categorization theory, and theories on adolescent peer groups. Theories on identity suggest that people, and especially adolescents, are motivated to engage in behaviours that express and affirm their (ideal) self concept. According to social identity/self-categorization theory, an important part of one's self concept (i.e., one's social identity) is derived from being a member of a social group. Therefore, behaviours that are characteristic for the group are likely to be adopted by each member. Finally, theory and research on adolescent peer groups reveal that these are highly important reference groups for adolescents' identity formation. The first three empirical studies use data from a national postal survey among 16 to 20 year old Danes. The first study is based on cross-sectional data while the second and third studies use longitudinal data collected at two points in time. The fourth study aimed to complement self-reported data with 'implicit' data obtained through reaction time tasks.

The second chapter reports the first empirical study which examined the cross-sectional relationship between adolescents' identification with eight distinct peer groups and their involvement in smoking, marijuana use, and drunkenness. The findings led to three main conclusions: (1) identification with the groups; pop, skate/hip-hop, techno, and hippie, is associated with higher chances of risk behaviour, while identification with the four other groups; sporty, quiet, computer nerd, and religious, is associated with lower risks, (2) the relationship between group identity and risk behaviour is mediated by perceived behavioural norms of the group, and (3) identification with multiple high-risk groups increased the

likelihood of smoking and marijuana use while identification with multiple low-risk groups lowered the chances of engagement in these behaviours.

The third chapter studies the prospective relationship between adolescents' group identity and smoking behaviour. From the findings it was concluded that (1) adolescents who identify with a group with a high-smoking norm are more likely to start smoking over the next one and a half years than adolescents who identify with a group with a low-smoking norm, and (2) adolescents whose smoking behaviour is inconsistent with the norm of their group more often change their behaviour or group identification than adolescents whose behaviour is consistent with the group norm.

The fourth chapter focuses on alcohol consumption. It studies both self-identity and social identity as predictors of adolescents' current as well as future drinking behaviour. The findings revealed that (1) self- and social identity are significant and independent predictors of drinking even when controlled for past drinking behaviour, and (2) adolescents' strength of identification with the eight reference groups is a stronger predictor of drinking than their degree of self-identification with high alcohol consumption.

Chapter five studies the interrelationship among self-identity, social identity, and perceived group norms. In doing so, it used both self-reported (questionnaire) data and 'implicit' data obtained through reaction time tasks. The reference group for this study was college students while binge drinking was the behavioural focus. Analyses of the self-reported data led to the conclusions that (1) perceived drinking norms positively predict self-identification with binge drinking, and that (2) this is especially true for strong identifiers with the group. Unfortunately, the collected implicit data showed very low internal consistencies and thus could not be used for further analysis.

Finally, chapter six summarizes and discusses the empirical findings and addresses the strengths and limitations of the research methods employed. Furthermore, in this chapter the implications for health promotion are discussed and recommendations for further research are given. Despite some methodological limitations, the thesis has yielded enough evidence to believe that identity, in particular peer group identification, plays a highly important role in adolescent health-risk behaviour. Prevention programmes that aim to reduce health-risk behaviour among young people may benefit from a social norm approach which incorporates the concept of distinct adolescent peer groups. Further, programmes may attempt to promote "healthy identities" and discourage "risky identities" among youth. The findings hopefully

will spur further research on identity as a determinant of health-risk behaviour in adolescents, including the underlying social psychological processes and the relation of identity to other predictors of adolescent risk behaviour. In addition, research is needed on the application of the findings in health promotion practice.

Resumé

Ungdomsårene er en kritisk periode med hensyn til at starte usund adfærd. Samtidig er ungdomsårene en afgørende periode for udvikling af egen identitet. Denne afhandling retter sig mod sammenhængen mellem disse to aspekter ved at undersøge, hvilken rolle identitet spiller som en socialpsykologisk faktor for risiko adfærd såsom rygning, hashbrug og stort alkohol forbrug. Særlig fokus er lagt på unges sociale eller grupperelaterede identitet, som udspringer fra tilknytningen til specifikke grupper, der udgøres af jævnaldrende. Afhandlingen består af seks kapitler: en introduktion (kapitel 1), fire empiriske studier (kapitel 2-5) og en generel diskussion (kapitel 6).

Det første kapitel forklarer hovedtrækkene i teorirammen og den anvendte forskningsmetode. Centrale teorier for afhandlingen er "identitetsteorier", herunder især "*Social Identity/Self-Categorization Theory*", og teorier om teenager-grupper. Identitetsteorier antager, at mennesker, især unge, tillægger sig adfærd der udtrykker og bekræfter deres (ideelle) selvopfattelse. Ifølge *Social Identity/Self-Categorization Theory* udspringer en vigtig del af ens selvopfattelse (nemlig ens sociale identitet) fra tilknytningen til en social gruppe. Derfor er gruppemedlemmer tilbøjelige til at overtage adfærd, som er karakteristisk for gruppen. Endelig viser teorier og forskning i teenagergrupper, at grupperne er en yderst vigtige reference for unges identitetsudvikling. De første tre empiriske studier anvender data fra en landsdækkende, postomdelt spørgeskemaundersøgelse blandt danske unge i aldersgruppen 16-20 år. Det første studie er baseret på tværsnitsdata, mens de to andre studier anvender et opfølgingsdesign, hvor data er indsamlet på to forskellige tidspunkter. Det fjerde studie komplementerer selv-rapporterede data med såkaldte "implicitte" data, det vil sige data tilvejebragt gennem reaktionstidsopgaver på computeren.

Det andet kapitel rapporterer det første empiriske studie, som undersøger sammenhæng mellem unges tilhørsfølelse til otte specifikke teenager-grupper og deres forbrug af cigaretter, hash og alkohol. Resultaterne fører til 3 hovedkonklusioner: (1) identifikation med grupperne pop, skater/hip-hop, techno og hippie er forbundet med større sandsynlighed for risikoadfærd, mens identifikation med de fire andre grupper (sporty, stille pige/dreng, computernørd, og religiøs) er forbundet med mindre risici, (2) sammenhængen mellem gruppeidentitet og risikoadfærd er medieret af den unges "opfattelse" af en bestemt adfærdsnorm i gruppen, og (3) identifikation med flere høj-risiko grupper samtidig forøgede

sandsynligheden for brug af cigaretter og hash, mens identifikation med flere lav-risiko grupper mindskede sandsynligheden for udvisningen af sådanne adfærd.

Det tredje kapitel undersøger det prospektive forhold mellem gruppeidentitet og rygning. Ud fra resultaterne kunne konkluderes, at (1) unge som identificerer sig med en gruppe med en høj rygenorm er mere tilbøjelige til at starte med at ryge i løbet af det kommende halvandet år end unge som identificerer sig med en gruppe med en lav rygenorm, og (2) unge hvis rygeadfærd ikke er overensstemmende med ”normen” i deres gruppe ændrer oftere deres adfærd eller deres gruppe identifikation sammenlignet med unge hvis adfærd er overensstemmende med ”gruppenormen”.

Det fjerde kapitel fokuserer på alkoholforbrug. Det undersøger både selv-identitet og social-identitet som prediktor for unges nuværende og fremtidige adfærd på alkoholområdet. Resultaterne viste, at (1) selv-identitet og social-identitet er signifikante og uafhængige prediktorer for alkoholforbrug, selv når der justeres for tidligere forbrug, og (2) unges grad af identifikation med de otte reference grupper udgør en stærkere prediktor for alkoholforbruget end deres grad af self-identifikation med højt alkoholforbrug.

Det femte kapitel undersøger det indbyrdes forhold mellem selv-identitet, social-identitet og opfattet gruppenorm. Hertil benyttes både selv-rapporterede (spørgeskema) data og ”implicitte” data tilvejebragt gennem reaktionstidsopgaver. Referencegruppen i denne undersøgelse var australske college students, mens det såkaldte ”*binge drinking*” (”går på druk”) fænomen var i fokus. Analyse af de selv-rapporterede data førte til konklusionerne, at (1) opfattede drikkenormer forudsiger positivt selv-identifikation med ”*binge drinking*”, og at (2) dette er især gældende for unge, der har en stærk identifikation med gruppen. Desværre udviste de implicitte testmetoder lav intern pålidelighed og kunne derfor ikke bruges til yderligere analyser.

Det sjette og sidste kapitel opsummerer og diskuterer de empiriske resultater og ser på styrker og svagheder ved de anvendte forskningsmetoder. I kapitlet bliver anvendelsesmuligheder inden for sundhedsfremme diskuteret og anbefalinger til videre forskning bliver fremført. Til trods for nogle metodemæssige begrænsninger har afhandlingen frembragt tilstrækkelig med vidnesbyrd om, at identitet, især gruppeidentifikation blandt teenagere, spiller en meget vigtig rolle for usund adfærd blandt unge. Forebyggelses-programmer, der tilstræber at mindske usund adfærd blandt unge mennesker, kunne drage nytte af at anvende en ”*social norm approach*”, der indbefatter konceptet med specifikke teenagergrupper.

Derudover kunne programmer søge at fremme ”sunde identiteter” i alle ungdomsgrupper og søge at modvirke ” høj-risiko identiteter”. Forhåbentligt vil resultaterne anspore til videre forskning vedrørende identitet som en forklarende faktor for unges sundhedsadfærd, herunder de underliggende social-psykologiske mekanismer og sammenhængen med andre forklarende faktorer. Derudover er der brug for implementerings-forskning, det vil sige forskning i anvendelse af forskningsresultaterne i praktisk sundhedsfremme.

