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Women's alcohol and drug use

Risk indicators from everyday life

by
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ABSTRACT

Aims: The overall aim of this thesis was to explore how various aspects of everyday life, measured using self-reported experiences from childhood, adolescence and adulthood were associated with alcohol and drug use in a population-based sample of Swedish women.

Methods: The thesis is based on data from the "Women and Alcohol in Gothenburg" project, a Swedish three-wave longitudinal, population-based, multi-purpose study. Three of the studies included women 20 and 25 years old when interviewed; and the sample sizes were 946 and 760, respectively. The fourth study included 851 women 20-55 years old. Studies I and II focused on the associations between the independent variables early risk indicators, socio-demographic factors, alcohol use, smoking, psychiatric illness and the dependent variables illicit and licit drug use. In Studies III and IV cluster analysis was used to identify clusters based on variables measuring patterns of drinking context and patterns of everyday occupations. The patterns of everyday occupations were defined as employment status, household work, leisure activities, time for free disposal and satisfaction with each domain. Drinking context was operationalised with questions on where and with whom the drinking occurred, together with questions on self-reported effects of drinking. Further, the associations between identified clusters and problematic alcohol consumption were analyzed. All four studies were based on cross-sectional analyses.

Results: Significant associations regarding early risk indicators and drug use were found; to some extent these were different for occasional use and more frequent use. Early alcohol debut and behavioral factors were related to all three drug use patterns, whereas family factors were associated with occasional use and with more frequent use of illicit and licit drugs. Frequent use of both illicit and licit drugs was also associated with a history of eating disturbances. Problematic alcohol consumption, smoking and psychiatric illness were significantly associated with illicit and licit drug use; with the strongest associations found for illicit drug use among the 20-year-old women. Cluster analysis identified distinct groups with respect to the investigated patterns. Concerning drinking context patterns, the cluster characterized with coping effects of drinking, frequent drinking in different settings but also solitary drinking, was significantly associated with alcohol use disorder and high alcohol consumption. High episodic drinking was more common in the cluster reporting frequent drinking together with social effects such as becoming less shy or having more fun. Problematic alcohol consumption was more common in clusters characterized with varied or low engagement in leisure activities in combination with a large amount of spare time.

Conclusions: The strong associations between illicit and licit drug use, alcohol consumption, smoking, and psychiatric illness point to a higher risk for developing any or several of these problems once one of these habits has been established. The results also underline the importance of identifying groups of individuals with different drinking patterns and with different patterns of everyday occupations. As a complement to variable analysis, investigating such patterns may provide new options for preventive actions as opposed to focusing on specific risk factors.

Keywords: Alcohol, substance use, drinking context, patterns of everyday occupations, epidemiology, women

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SAMMANFATTNING

Syfte: Avhandlingens syfte var att undersöka samband mellan olika självupplevda faktorer i vardagslivet, från barndom till vuxenålder, och alkohol och droganvändning hos kvinnor i den allmänna befolkningen

Metod: Avhandlingen baseras på data från en longitudinell befolkningsstudie, ”Kvinnor och alkohol i Göteborg” (WAG). Tre av studierna inkluderade 946 och 760, 20 respektive 25-åriga, kvinnor. I avhandlingens fjärde studie ingick 851 kvinnor 20–55 år gamla. Studie I och II fokuserade på användning av illegala och legala droger och sambandet med riskindikatorer från barndom och vuxenliv. I studie III och IV användes klusteranalys för att identifiera grupper av kvinnor utifrån två koncept, dryckeskontext och aktivitetsmönster i vardagen. I konceptet aktivitetsmönster i vardagen ingick frågor om typ av sysselsättning, typ av fritidsaktiviteter, fördelning av hemarbete, mängden tid för egna aktiviteter samt tillfredsställelse med vart och ett av dessa områden. Konceptet dryckeskontext definierades med hjälp av frågor som besvarade var och med vem man druckit alkohol samt vilka effekter man upplevt av alkoholen. Vidare analyserades sambandet mellan de kluster som identifierats och alkoholvariabler, mätta som alkoholberoende/missbruk, hög alkoholkonsumtion och intensivkonsumtion. Alla fyra studierna var tvärsnittsstudier.

Resultat: Resultaten visade på signifikanta samband mellan tidiga riskindikatorer och droganvändning, och i vissa fall framkom skillnader beträffande sporadisk och mer frekvent användning. Tidig alkoholdebut och vissa beteendefaktorer, t.ex. skolk eller snattning, relaterade till alla tre typer av droganvändning. Familjefaktorer hade starkare samband med sporadisk användning av illegala droger men även med mer frekvent användning av både illegala och legala droger. Mer frekvent användning av båda sorternas droger var även associerat med självrapporterade ätstörningar. Droganvändning hade vidare ett starkt samband med riskkonsumtion av alkohol, rökning eller psykiatrisk diagnos, särskilt gällde detta användning av illegala droger hos de 20-åriga kvinnorna. Hos den grupp kvinnor där dryckeskontexten karaktäriserades av att man drack för att klara vardagen bättre (t.ex. hjälp att somna eller bli mindre nedstämd), att man drack ofta (i olika situationer) samt även drack ensamma, var alkoholberoende/missbruk signifikant oftare förekommande. Intensivdrickande var vanligast i den grupp som bejakade sociala effekter (t.ex. bli mindre blyg eller få roligare) av att dricka alkohol. I klustren som identifierades utifrån aktivitetsmönster i vardagen var alkoholberoende/missbruk, hög alkoholkonsumtion och intensivkonsumtion vanligast bland de kvinnor som trots mer tid till förfogande var mindre engagerade i fritidsaktiviteter.

Slutsats: Sambanden mellan droganvändning, riskkonsumtion av alkohol, rökning och psykisk sjukdom kan tolkas som att förekomsten av ett av dessa problem ger en ökad risk för att utveckla flera andra. Vidare pekar resultaten på vikten av att identifiera grupper av individer med olika dryckesmönster samt att uppmärksamma sambanden mellan sådana dryckesmönster och de behov alkoholdrickandet tillfredsställer i dessa individers vardag. Att identifiera sådana mönster kan sannolikt ge nya idéer om hur preventiva åtgärder skall utformas, utöver vad analys av enskilda variabler kan göra.

Nyckelord: Alkohol, drog användning, dryckeskontext, aktivitetsmönster i vardagen, epidemiologi, kvinnor

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LIST OF PUBLICATIONS

The present thesis is based on the following studies which will be referred to in the text by their Roman numerals:

I. Andersson C, Spak L, Sundh V, Spak F. Do early risk indicators differ for occasional and frequent drug use in a young, female population? *Manuscript.*

II. Andersson C, Waern M, Spak L, Spak F. Associations between substance use, psychiatric illness and social factors in young Swedish women. A population-based study. *Submitted.*

III. Andersson C, Sundh V, Waern M, Jakobsson A, Lissner L, Spak F. Drinking context and problematic alcohol consumption in young Swedish women. *Submitted.*

IV. Andersson C, Eklund M, Sundh V, Thundal K-L, Spak F. Women's patterns of everyday occupations and alcohol consumption. *Scandinavian Journal of Occupational Therapy. Published online: 22 November 2010.*

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LIST OF ABBREVIATIONS

AUD	Alcohol use disorder
CIDI-SAM	Composite International Diagnostic Interview – Substance Abuse Module
CMOPE	Canadian Model of Occupational Performance and Engagement
DSM	Diagnostic Statistical Manual of Mental disorders
HAC	High alcohol consumption
HED	High episodic drinking
OR	Odds ratio
SCT	Social Cognitive Theory
SES	Socio-economic status
SUD	Substance use disorder
SWAG	Screening Women and Alcohol in Gothenburg
WAG	Women and Alcohol in Gothenburg

INTRODUCTION

The development of different drinking patterns and alcohol-related problems is hypothesised to be multi-factorial, influenced by age, life stage and gender, and also by social and cultural factors (1-2). The aetiology of substance use and abuse is also suggested to be multi-factorial. Determinants include genetic, psychological and social factors (3). Both in Sweden and world-wide, the use of alcohol contributes to social problems, poor health and increased mortality. In 2000, 9.2% and 1.8% of the total global burden of disease was attributable to alcohol and illicit drugs in developed regions such as Sweden. For women the corresponding figures were 3.3% and 1.2%. Alcohol and drug-related mortality is more often due to acute outcomes, such as injury, which affects younger adults to a higher extent than older adults (4).

This thesis investigates how different aspects of everyday life, measured by a variety of self-reported experiences through childhood, adolescence and adulthood can help to explain substance use behaviour in a population-based sub-sample of Swedish women.

Substance use

Alcohol consumption

There are significant differences in alcohol consumption among countries in Western Europe. In terms of sales figures, Sweden is positioned as one of the countries reporting lower drinking frequencies. However, recent developments suggest decreasing consumption in traditionally high consumption countries and stable or increasing figures in countries that have previously been characterized by lower consumption. (5). Such findings have lead to an interest in examining convergence in drinking habits among countries, as well as to efforts to compare drinking cultures on a more regional level, including the exploration of gender differences (6). Studies have further investigated other contributing factors such as individual drinking patterns (7), and societal (8) and family factors (9) that may influence such patterns. An international study comprising 29 countries (including Sweden) concluded that women's alcohol consumption was higher in countries with high gender equality and a high degree of modernization (8). In Europe, men consume more alcohol than women, both in terms of frequency and quantity. However, gender ratios vary among countries. The lowest gender ratios with regard to alcohol consumption are found in the Northern European countries (6). After having peaked in the late 1970s, alcohol consumption decreased until med 1980s, and then stabilized. After Sweden entered the European Union in 1995 alcohol consumption increased until the beginning of the 2000s. Since then the figures have stabilized and recent figures count 9.5 litres of pure alcohol per inhabitant over the

age of 15. Women's proportion of the male alcohol consumption has increased from 20% in 1968 to around 45% during the first decade of the twenty-first century. The proportion of at-risk consumers in the adult population was estimated at about 17% of men and 10% of women in 2004 (5).

Also alcohol-related mortality in Sweden peaked, in modern times, in the late 1970s. Since then mortality has decreased about 20% in men, and also for women there was a slight decline in the 1980s, but lately a 10 % increase in female alcohol-related deaths has been seen in the 2000s. The gap in both alcohol consumption and alcohol related mortality between women and men is presently slowly shrinking.

Changes in rates of consumption and alcohol-related harm do not necessarily follow one another. This might in part be attributed to a delayed impact. Further, increases in consumption involve also moderate drinkers. These are not traditionally characterized as problem drinkers and probably contribute little to morbidity/mortality. Better information about drinking patterns of various population groups has been requested (5).

Drug use

A recent publication on drug use in Europe, with data related to the year 2007, reported a lifetime prevalence of cannabis use among young people (15–34 years) ranging from 2.9% to 48.0%. In addition, between 0.9% and 20.9% of young adults reported use of cannabis in the past 12 months. Rates for recent use of other drugs among these young adults were generally between 0.5% and 5.0%. In adult populations (15-64 years) in the European Union, the use of illicit drugs was highest among young adults, and more prevalent among men and among those living in urban areas. The male to female ratio for past 12 month of cannabis use ranged from 1.4 to 6.4. The European report concluded that the prevalence of cannabis use is declining or stabilising, although levels of use remain high by historical standards (10).

Swedish national data from 2008 revealed that 10% of younger adults (15–29 years) reported lifetime use of cannabis; the corresponding figure for use in the past 12 months was 2% (5). A national youth survey (ages 16-24) concluded that illicit drug use had increased between 1994 and 2003. In 2003, the male to female ratio for lifetime use was 1:1.5 (11). In 2000, the 12-month use of benzodiazepines and opiates among younger adults was 6%, and the male to female ratio was 1:0.5 (12).

Despite the fact that drug use in Sweden is among the lowest in Europe, problematic use, measured in terms of mortality rates is relatively high, ranking in

the middle of the European countries (10). This rather unusual situation, which is observed also in a few other countries, calls for further investigation.

Risk indicators

Alcohol and drug use can be seen in a developmental perspective over the life span, as use peaks in younger adult years and is declining thereafter. Explanations for more persistent substance use behaviours have been found to include risk indicators from childhood and adolescence, contemporary socio-demographic factors or concurrent use of other substances (3, 13).

Overviews of the literature have reported different associations between socio-economic status (SES) in childhood and alcohol use and drug use later in life. Some studies show no support for an association between lower SES and alcohol use (14), whereas others show an association between lower SES and later drug use, especially cannabis (15). Risk factors for non-regular use of cannabis have also been found to differ from risk factors for abuse and dependence (16-17). Both genetic and family/environmental factors influenced the risk of lifetime use of cannabis in a study of female twins, while genetic factors alone predicted heavy use and misuse (16). Contemporary demographic factors, illicit drug use and alcohol use have been found to be associated with similar demographic characteristics such as risk-taking, male sex, age under 25 years and not being married (18). In women, socio-demographic factors such as income and divorce were more closely related to illicit drug initiation, whereas psychiatric disorders were associated with progression to abuse/dependence (19). Despite a number of studies on the associations between substance use and socio-demographic factors, a literature review focusing on the social epidemiology of substance use concluded that the role of fundamental social factors, e.g. individual SES, is still unclear (3).

Associations between socio-demographic factors and drug use can be explained in different ways. On the one hand, social status may affect drug use (causation), while on the other hand, drug use may cause impaired social mobility (selection) (20). In addition, factors operating early in life, e.g. cultural, psychological and social factors, may determine both social status and health/drug use (indirect selection). These explanations were investigated in a study of social gradients and health, giving support to a modified causation hypothesis. In addition, a combination of factors in adult life, such as features of the work environment, social circumstances outside work and health behaviour accounted for many of the social gradients in health (21).

Several studies have reported associations between smoking, alcohol use and the use of illicit drugs, as well as associations between the use of cannabis and other forms of illicit drug use (18, 22-23). These findings may lend support to the

gateway theory, although the causal effects are uncertain. While this theory proposes a specific sequence of drugs through which users often progress, such a progression can be explained in different ways. Escalating use of other drugs may be attributable to biochemical factors as well as to individual learning experiences, both increasing susceptibility to other drugs. Also, social context may influence both the availability of drugs and attitudes to substance use (24).

Other studies have examined the association between substance use and mental health. A longitudinal study of adolescents (15-21 years) in New Zealand found that mental disorders at age 15 led to a higher risk of cannabis use at age 18, and that cannabis use at age 18 elevated the risk of mental disorder at age 21 (25). An Australian study found a twofold increase in risk for later depression and anxiety among teenagers using cannabis at least weekly (26). This finding was confirmed in a review of cannabis use and depression, where frequent (> weekly) use was concluded to increase the risk for later depression (27). Neither of these two studies confirmed the "self-medication" hypothesis, i.e. that pre-existing symptoms (e.g. depressive symptoms) might raise the likelihood of cannabis use.

Studies of risk indicators and substance use in non-clinical populations in Sweden have been carried out mainly in male populations (28) and student groups (29), or in specific sub-groups such as homeless people (30) and persistent offenders (31). Further investigation of differences in patterns of substance use among women, as well as factors associated with such differences, has been called for (32-34).

Integrated models

When health behaviour, such as substance use, is not sufficiently explained by traditional variable-oriented approaches, often formalized in terms of trying to find casual relationships and adjusting for mediating factors, a person-oriented approach has instead been suggested. Essential assumptions underpinning such an approach are that the factors to be studied, e.g. behavioural, biological and environmental, are seen as interacting elements and that the individual is the focal object of interest. The individual investigated variables have no separate status but constitute typical patterns of behaviour (35).

Drinking patterns and drinking context

The importance of studying drinking patterns in explaining consequences of alcohol consumption has been emphasized in studies and reports lasting recent decades. At a conference on drinking patterns, discussing the importance of expanding research to more than volumes of average drinking, the following was discussed: the number of heavy drinking occasions, or binge drinking occasions, was concluded to be a stronger predictor of drinking problems than level of consumption. Difficulties in conceptualizing various aspects of drinking patterns

and finding statistical methods for investigating these aspects were discussed. The needs to investigate the social dimension of drinking, as well as to use different models and methods related to theory, were underlined (36). Later research has been conducted by studying alcohol consumption and drinking behaviour in a more differentiated way than focusing solely on the quantity and frequency of consumption or comparing beverage preferences (37-38). Drinking patterns have also been examined in a variety of ways; e.g. by studying binge drinking, or describing situational aspects related to the drinking (39). In more recent studies, binge drinking patterns have also been reported as a significant factor explaining alcohol-related problems (7).

In addition, drinking patterns have been defined from a contextual perspective. Some researchers have defined context as solely situational, meaning the time and place of the drinking situation, using the terms environmental context (40) or drinking context (41). When other persons participating in the drinking situation, or reasons for drinking were included, the term social context has been used (38, 42-43). Summarizing the research on the issue of drinking context, one conclusion is that the reasons for drinking and the context are inter-dependent and that drinking motives and situations may merge into specific clusters to form psychosocial drinking microenvironments (44). The drinking context has also been reported as being an important factor in explaining the development of problematic alcohol consumption or alcohol-related consequences (38, 41, 45).

When examining the determinants of drinking and changes in drinking behavior, in some cases a specific theory, such as the Social Cognitive Theory (SCT), has been used. This theory explains human functioning with a model called "triadic reciprocality" where behaviour, personal factors and the environment are seen as interacting parts. In addition to social-environmental factors and coping skills, cognitive factors have a mediating role in alcohol and drug use behaviour (46). These cognitive factors, positive and negative outcome expectancies and self-efficacy expectations have been hypothesized as predictive of substance use behaviour. A study using SCT concluded that these three factors, together with social norms, explained 34% of the variance in drinking behaviour in a student population, a doubled result as compared to recognizing solely positive expectancies as an explanatory factor. Social norms emerged as the strongest predictor, explaining 24% of the variance (47).

Looking explicitly at drinking motives, a factor found to be closely associated with drinking in different situations, a review of research concerning adolescent drinking showed that most young people reported drinking for social motives, some for enhancement and only a few for coping motives. Drinking for coping motives showed a stronger association with alcohol-related problems. The authors stated

that drinking motive research is highly heterogeneous, and recommended the use of multidimensional methods based on theoretical assumptions (48).

Patterns of everyday occupations

It has been proposed that an individual's capacity to terminate substance misuse is a function of resources developed and maintained over the entire life course. Such resources, outlined as the construct of recovery capital, are also described as forming a dynamic system including personal attributes, physical and socio-environmental structures, cultural dispositions and related life circumstances (49). Such a dynamic, theoretical construct could be expanded into exploring differences in populations, seeking answers as to why individuals develop a substance misuse problem or why they do not. Investigating the associations between prevalence of substance use and living conditions in a more comprehensive way could be of importance.

In the fields of occupational therapy and occupational science, people's engagement in the chores of daily life is been denoted using the term *occupation*, and in this comprehensive meaning it is to be distinguished from a narrower definition denoting paid employment. There is also a need to differentiate between two core concepts: occupation and activity. Proposed definitions have been outlined, with *occupation* meaning an individual's personally constructed, one-time experience within a unique context and *activity* meaning a more general, culturally shared idea about categories of action (50). Although there is as yet no consensus concerning the definition of occupation (51), there is agreement about the need for engagement in occupation and the way in which occupation brings meaning to life (52). The concept of occupational performance has been central to the development of occupational therapy models. Although there are distinct differences, these models include three central elements: person, occupation and environment. All models emphasize the complex interaction of these elements with biological, psychological and social factors to enhance human well-being (53). This interactive perspective is further described in the Canadian Model of Occupational Performance and Engagement (CMOPE), where occupational performance is defined as groups of activities and tasks of everyday life which are named, organised and given value and meaning by individuals and their culture (54).

Some conceptualizations of occupation have been criticized for using overly simplistic categories, such as self-care, productivity and leisure. A review article by Hammell (55) stated that subjective qualities that address intrinsic needs should be emphasized instead, taking into account people's need for both satisfaction and individual balance in their daily constellations of occupations. Furthermore, the importance of developing an understanding of patterns of participation across locations, gender, culture and the life span has been underlined (52). Another

review addressed the limitations inherent in beliefs about a healthy balance of work and leisure. The author concluded that a useful framework for studying a healthy balance in daily life may require deconstruction of the dichotomy between work and leisure through examination of the affective experiences that occur during engagement in one's customary round of occupations (56). In a proposed model of lifestyle balance, a healthy balance was defined as 'a satisfying pattern of daily occupation that is healthy, meaningful and sustainable to an individual within the context of his or her current life circumstances' (57). To be satisfied in this sense was explained as finding a congruence between the actual doing and an individual's desired participation in occupations (57).

The model of Matuska and Christiansen (2008) proposed that a balanced pattern of occupations could lead to reduced stress, improved health and well-being and greater life satisfaction (57). A literature review of definitions of occupation and health was summed up with evidence for a relationship between these concepts, but with a comment that the nature of this relationship still is unclear. The authors argued for further research to identify the mechanisms by which occupation and health interact (51). Investigating health behaviour such as alcohol consumption could fit into these lines of thoughts.

AIMS

The overall aim of this thesis was to explore how different factors related to everyday life experiences were associated with substance use behaviour in a general population sample of Swedish women.

Specific aims of the studies:

- To study risk indicators for illicit and licit drug use, and to compare whether risk indicators differ between women who reported occasional use of drugs and women reporting more frequent use of drugs (Study I).
- To analyse how socio-demographic factors, alcohol consumption, alcohol diagnosis, smoking, and psychiatric illness are associated with illicit and licit drug use (Study II).
- To identify different types of drinking contexts and to analyze the association between drinking context and problematic alcohol consumption (Study III).
- To identify different groups of women with respect to their individual patterns of everyday occupations and to analyze the associations between these patterns and alcohol consumption (Study IV).

MATERIALS AND METHODS

Sample/study design

This thesis is based on data from the WAG (Women and Alcohol in Gothenburg) project, a Swedish three-wave longitudinal, population-based, multi-purpose study. In each wave the data collection was carried out with a two-phase stratification procedure, based on the alcohol problem-screening questionnaire SWAG (Screening, Women and Alcohol in Gothenburg) in the first phase and structured interviews with a randomized, stratified sample of the population in the second phase. In the first wave, the stratification groups were made up of respondents with a SWAG score of $\geq \underline{4}$, a score of 1-3 and a score of 0, respectively. The screening questionnaire was sent to all (3,130) women born in 1925, 1935, 1945, 1955 and 1965 living in District West in Gothenburg, Sweden, in 1986, and in the second phase 399 of them participated in an interview in 1990. In the second and third waves, SWAG scores of ≥ 5, 1-4 and 0, respectively, were used to construct the stratification groups. In the second wave, in 1996, the questionnaire was sent to 2,910 women born in 1970 and 1975 living in the western or central districts of Gothenburg, and 615 of these women participated in an interview. In the third wave, in 2001, all women (n=1,098) born in 1980 and living in the same districts were invited to participate. In this group, 358 women completed the interview. Furthermore, in 2001, re-interviews were made with 728 women who had participated in either one or both of the previous interviews.

In order to secure a high response rate to the main research issue of the WAG study, i.e. alcohol consumption among women, a short-form of the interview manual was constructed as an alternative for participation. The short-form mainly included questions about strictly alcohol-related topics and consumption patterns. This form was mostly used with women who did not have the time or motivation to participate in the complete interview. Overall, 14% of all interviews in the WAG project were short-form interviews, and these were excluded from the analyses in this thesis. The WAG study has been described in detail in previous work (58-59).

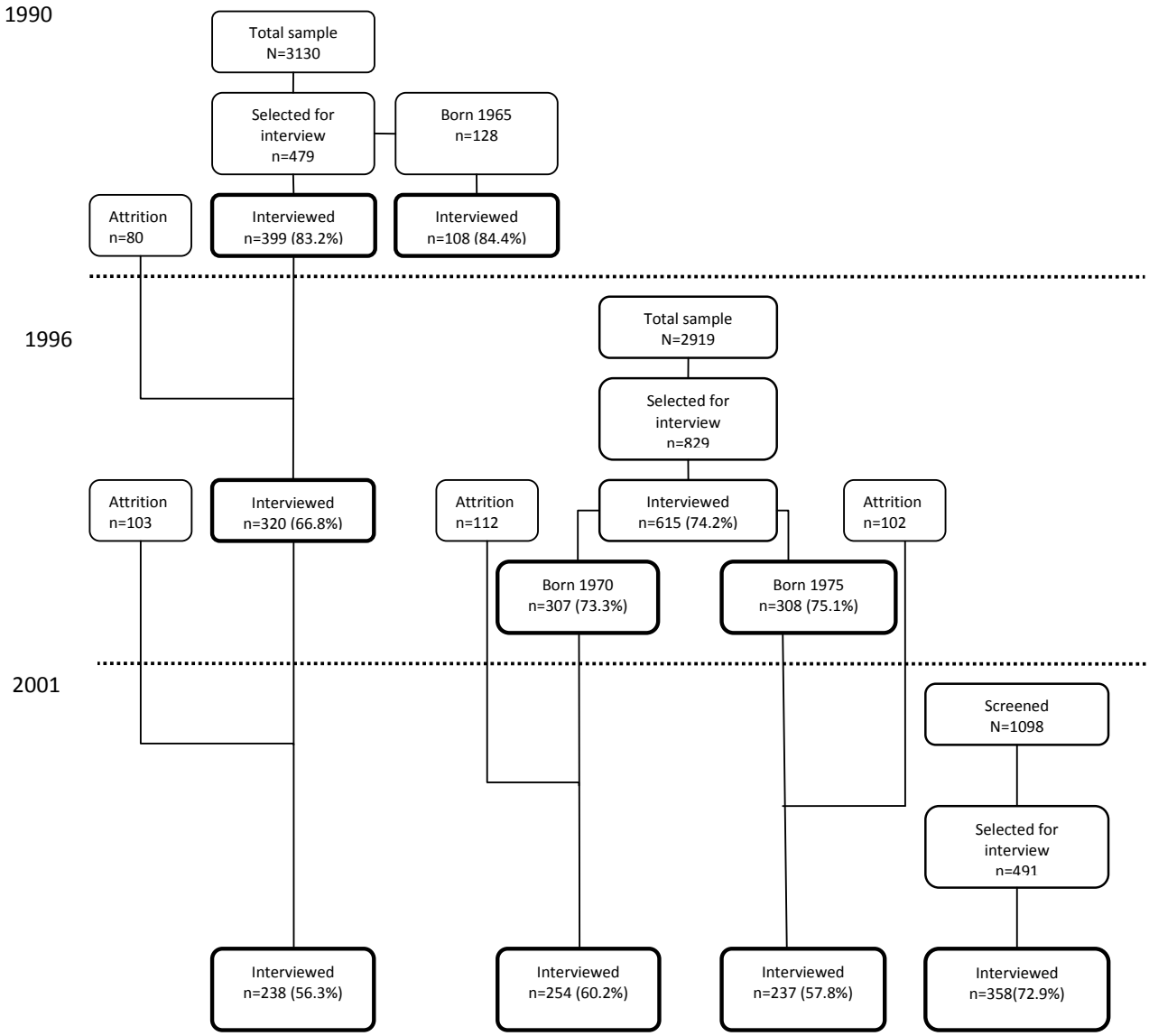

Figure 1. Flow chart describing the study population originating from the WAG study in 1990, 1996 and 2001.

Table 1. Participants in Studies I-IV

STUDY NO	BORN 1945-1965	BORN 1970	BORN 1975	BORN 1980	TOTAL
I-II	94[a]	265 [b]	278 [b] +25 [c]	284 [c]	946
III		234[b]	243 [b] +38 [c]	245 [c]	760
IV	170[c]	207 [c]	197 [c]	277 [c]	851

[a] Data collected in 1990, [b] Data collected in 1996, [c] Data collected in 2001.

Studies I-II

This study reports data from women either 20 or 25 years old when participating. In 1990, 94 women, born in 1965, participated from a stratified sample of 128 women. Out of 829 women, born in 1970 or 1975, 543 participated in the interviews performed in 1996. In the third wave, 284 out of 491 women, born in 1980, completed the interview in 2001. Additionally, from the previously stratified sample born in 1975, a total of 202 women participated in wave three. From this age group, Study I included 25 respondents interviewed for the first time in 2001. In Study II the same 25 women, as well as 177 follow-up interviews were added to the analyses.

Study III

The sample consisted of 760 women, 20 and 25 years old, who participated in the project in 1996 or 2001. Included in the study were all women who had consumed alcohol more than once a month during the last year and with full data available on the questions pertaining to drinking context variables. From the group of women born in 1975, who were interviewed in both wave two and wave three, 137 respondents contributed data both as 20-year-olds and as 25-year-olds. Thus we ended up with a total of 897 interviews from 760 individuals.

Study IV

Eight hundred and fifty-one women who participated in the complete interview in 2001 were included in the study. As a consequence of the initial selection procedure, the sample consisted of homogeneous age groups, with five year intervals to the next group. From the original total sample of the study, we excluded women from the oldest age groups (65 and 75-year-olds). Further, the choice was made to collapse the women into a young adult (20 and 25-year-olds) and an adult (30-55 year-olds) age group based on an a priori assumption that the patterns of everyday occupations are partly age-dependent, with older women having more stable patterns with respect to employment and family situation. Thus the two groups consisted of 474 women aged 20 or 25 and 377 women between 30 and 55 years of age.

Measurements

The interview manual for the WAG study contained questions about living conditions, alcohol and drug use and different aspects of health from childhood until the date of interview. For the studies included in this thesis, the variables of interest are described in greater detail below.

Alcohol consumption

From the self-reported questions about the quantities and frequencies of alcohol consumed during the last year as well as the last month, two variables measuring problematic alcohol consumption were calculated: high episodic drinking (HED) and high alcohol consumption (HAC). HED was defined as drinking more or equal to 60 g ethanol per occasion at least once per month, and HAC was defined as drinking on average at least 20 g ethanol/day during the last month. The diagnosis of alcohol use disorder (AUD), lifetime and last year, was made using the Composite International Diagnostic Interview – Substance Abuse Module (CIDI-SAM) (60). In Study IV, alcohol consumption was operationalised as three variables: low consumption (drinking less than once per month in the previous year), non-problematic consumption and problematic alcohol consumption. The variable, problematic alcohol consumption included AUD, HED and HAC. Measures on alcohol consumption were used as explanatory variables in Studies I and II, and as outcome variables in Studies III and IV.

Variables measuring drug use

From a specified list of illicit and licit drugs, subjects were asked how often during their lifetimes they had used specific drugs for psychoactive reasons and (if relevant) without a prescription. The drugs categorised as illicit in this study were cannabis, amphetamine, cocaine, heroin, psychedelics, inhalants, and 'other drugs'. The drugs categorised as licit were opioid (analgesic) substances and potentially addictive tranquillisers (including barbiturates), either prescribed by a physician or obtained in other ways. In Study I the answers concerning drug use were categorized into three patterns: occasional ($\leq$ five times ever) use of illicit drugs vs. no use, frequent (> five times ever) use of illicit drugs vs. sporadic or no use, and frequent use of both illicit drugs and addictive sedatives or pain killers.

Early risk indicators

The interview consisted of questions regarding family, social, psychological and behavioural factors, and substance use during the respondent's childhood and adolescence, including alcohol consumption, smoking initiation, sexual abuse, obstetrical/gynaecological factors and illicit and licit (addictive sedatives or pain killers) drug use. Factors occurring before the age of 18 years are referred to as early background factors. Factors identified in a previous study as significant predictors of AUD or depression and anxiety (61) were tested as explanatory

factors, together with additional factors from childhood and adolescence in Study I. The variables were divided into six categories: Family and social factors, School factors, Self-perceived problems, Behavioural factors, Use of other substances, and Sexual/gynaecological factors. In Study III four variables from childhood and adolescence were included: self-reported occurrence of problematic alcohol consumption in parent(s), a proxy variable measuring early deviant behaviour, psychiatric problems prior to age 18, and regular alcohol drinking prior to age 16.

Socio-demographic factors

Subjects were asked about their present employment situation and the household's total income during the last year. Employment was divided into three groups: paid employment, student, and neither employed nor student. Further, questions were asked about marital status and about having children under the age of 14 years in the household. Marital status was reported as married, cohabiting or having a more than six months long partnership; separated (from any of the above mentioned types of relationships); or single. Subjects were also asked about their highest educational level. Education was divided into three groups: compulsory school (9 years), high school (10-12 years), and college/university (completed or current). Included in Studies I-II were also one variable measuring parental social class and, as for study II, one variable measuring respondent's social class. These variables were determined according to present (or for parents, main occupation), using the standard three-level Swedish classification based on the official socio-economic classification of Statistics Sweden (62).

Smoking and psychiatric illness

Smoking was reported as either regular smoking or no or occasional smoking. Psychiatric disorders, with the exception of substance use disorders, were diagnosed according to DSM-III-R (63) or DSM-IV(64).

Drinking context variables

In accordance with other studies on drinking context (44, 47), the drinking context concept in Study III was operationalised by including variables that corresponded to the questions of *why* (i.e. self-reported effects from drinking), *where* and *with whom* the drinking occurred. Subjects were asked to respond to 14 statements such as "when drinking I feel less shy," "when drinking I forget my worries if I am depressed" or "I feel brighter" or "I get better ideas". The response options were three: agree mostly, agree sometimes, and never.The respondents were also asked how often during the latest month they drank in specific settings such as at a restaurant, a party, at home together with family and friends or at home alone. A five-point scale was used, with the answering options: daily, several times/week, 1–2 times/week, monthly and never. The same response categories were used in the questions regarding how often they drank together with specific people (partner, friends, fellow-workers or alone).

Patterns of everyday occupation

The variables chosen to define the women's patterns of daily occupations in Study IV were questions regarding employment status, distribution of household/domestic work, leisure activities, time for free disposal and satisfaction with each of these four domains. Concerning employment status and domestic work, the subjects were asked to what extent they were occupied in professional work or studying, as well as taking part in ordinary household work. Regarding leisure activities, the subjects were asked, from a list of 37 items, about the specific activities they had enjoyed during the last year. These activities were classified beforehand into four categories (cultural, social, physical and creative). Concerning time for free disposal (based on an ordinary weekday and an ordinary holiday), the women were asked to estimate how much time they had for doing whatever they chose. Lastly, on a 5-point scale, the subjects were asked how satisfied they were with each of these four domains.

Statistical analyses

The statistical analyses in all four studies were done using the SPSS, version 16.0 and 17.0 (65). All results from logistic regression analyses are presented as odds ratios (OR) with 95% confidence intervals. In Studies III and IV two-step cluster analysis was used to explore the patterns under investigation. Cluster analysis has previously been shown to be a useful tool when exploring and organizing distinct profiles among groups of individuals (66-67). The method is a numerical technique for deriving classifications, or cluster groups, in a specific population, based on the assumption that patterns within a cluster are similar to each other and in some respects differ from objects in other clusters (67).

Study I

The associations between early risk indicators and each of three patterns of drug use as the dependent variables were examined using logistic regression analyses. The univariate analyses were done with all early background factors as independent variables. Significant associations from the univariate analyses were then entered into a stepwise logistic regression model, and analysed separately for each background domain. Finally, the remaining significant associations were run in a stepwise model. Both stepwise models were adjusted for age and year of first interview.

Study II

Logistic regression was used for calculating the ORs for the univariate associations between socio-demographic factors, HED, HAC, AUD, smoking and psychiatric illness with illicit and licit drug use as dependent variables. In the regression models the subgroups were collapsed into two groups corresponding to the participants' ages when interviewed and further controlled for year of survey.

Study III

In Study III the two-step cluster procedure was used to identify distinct clusters groups of individuals on the basis of the mean values of each defined drinking context variable. To prevent unequal contributions from the original three-point and five-point scaled questions, responses were transformed to either a three-point ordinal scale with levels 0 – 1 – 2 or a five-point scale with levels 0 – 0.5 – 1.0 – 1.5 – 2. When the numbers of clusters were automatically determined, the result was a five cluster solution. However, one of the clusters was difficult to distinguish clearly from two of the others and to characterize in a meaningful way. Therefore, a rerun of the analysis with an a priori fixed number of clusters at four was performed. All available interviews were used in the analysis in order to retain an age distribution similar to the target population. Data were reanalyzed after having excluded the 137 women who had participated in both waves two and three. Similar clusters were identified in women with or without a second interview and their mean values regarding context variables did not differ. From this result, the decision was to keep all available interviews (n=897) in the cluster analysis.

In the next step the cluster groups were compared for differences in variables measuring socio-demographic variables, early risk factors, use of other substances and psychiatric disorders, besides AUD. Group differences were analyzed on the unweighted material, using the Pearson Chi-square test. Associations between the identified clusters and problematic alcohol consumption (HED, HAC and AUD) were analysed using the Pearson Chi-square test. In order to avoid the complication of correlated observations, only data from the first interviews were used when testing for potential associations with HED, HAC and AUD, lifetime and last year. Finally, logistic regression models were used to calculate the ORs taking the cluster with least frequent reports, both on drinking effects and situational drinking, as the reference group. The analyses started with a univariate model, then age and survey year were added as covariates. Later models were adjusted for three separate sets of covariates and finally for the complete set of covariates. The regression analysis was performed in two ways – without regard to the sample design (unweighted), and with regard to the sample design (weighted).

Study IV

Two-step cluster analysis was used to identify cluster groups on the basis of the mean values for items pertaining to everyday occupations. In order to allow for the most equal contributions to the analysis, all answers were transformed into a five-step scale ranging from 1-3 with 1 meaning less activity/satisfaction and 3 meaning more activity/satisfaction. Three of the variables included (employment status, time for free disposal and leisure activities) did not have pre-scaled response options in their original forms. These variables were arbitrary divided into three categories with each step including about 30% of the total response frequencies.

The number of clusters was chosen by combining both formal criteria and a subjective assessment of meaningfulness of cluster characteristics. The three cluster solution showed higher separation between all included variables concerning both age groups, meaning that all included variables had a stronger influence on the cluster allocation than e.g. compared with a two cluster model. Since this option was also assessed as giving the most distinct and meaningful description of the identified clusters, the final decision was to use a three cluster solution for both age groups. The cluster method is sensitive to the order of the cases in the data set, and therefore the cluster process was rerun several times with random reordering of the cases between each run. The clusters were then linked over all runs according to degree of agreement. Finally, each case was classified according to the most frequent cluster. The clusters were then labeled according to the levels of their present activities.

The cluster groups were described concerning differences in socio-demographic characteristics and differences in AUD, HED and HAC. Differences between the cluster groups were analyzed using the Pearson Chi-square test. Pearson Chi-square was also used to test for differences between the cluster groups with respect to different alcohol consumptions patterns. Finally, logistic regression models were used to test the chosen socio-demographic factors as possible explanatory variables concerning the association between the cluster groups and problematic alcohol consumption.

Ethical considerations

The studies were approved by the Ethics Committee at the Faculty of Medicine at the University of Gothenburg on September 9, 2000 (Ö 591-99).

All respondents were informed about the aims of the project by a letter sent to the selected sample. They also received oral information at the time of the interviews. Information was given about the principle of voluntary participation and the possibility of withdrawing at any time as well as of omitting responses to specific questions without having to give a reason.

RESULTS

Study I

In this study where early background factors were analysed in relation to three patterns measuring illicit and licit drug use, differences were found between these patterns in the univariate analyses. Concerning occasional use of illicit drugs the risk was more than doubled for several factors from five of the six domains: Family and social factors, Self-perceived problems, Behavioural factors, Use of other substances and Sexual/gynaecological factors. The highest ORs were found for behavioural factors. For frequent illicit drug use, there were fewer significant associations in the family domain, but the ORs for behavioural factors and early debut of alcohol and smoking were higher. Even higher ORs were found in all domains concerning frequent use of illicit drugs and addictive sedatives or pain killers.

In the stepwise regression for each domain, the most significant predictors for occasional use of illicit drugs were perceived problems during childhood, all behavioural factors except restlessness, early alcohol and/or sexual debut. Moving away from home before the age of 18, frequent truancy, staying away from home and regular smoking before the age of 15 all showed a more than doubled risk for frequent use of illicit drugs. Just as in the univariate analyses, the ORs for the remaining significant variables concerning use of illicit drugs and addictive sedatives or pain killers were higher than for the other two drug patterns. The highest odds ratios were found for not feeling accepted by father, reported eating disturbances, frequent truancy and regular smoking before the age of 15.

In the final stepwise regression model, the remaining significant variables were to some extent the same for the three drug use patterns. Shoplifting was more than doubled among drug users and early alcohol debut age was more common. Not feeling accepted by one's mother, experiencing one's father as strict, and being convicted of a crime were all associated with a higher extent of occasional use of drugs. Smoking regularly before the age of 15 was associated with more frequent use. In addition, using illicit drugs and addictive sedatives or pain killers were significantly associated with not feeling accepted by one's father and reported eating disturbances. Adjusting for age and year of interview did not change the results.

Study II

Parental social class or respondent's own occupation did not prove to be associated with illicit drug use, nor were there any significant associations between socio-demographic factors and the use of licit drugs. Only the 20-year-old group had a

more than three times higher OR concerning the use of illicit drugs and associations with the respondents being separated from long-lasting relations or having compulsory education only.

Concerning the variables measuring problematic alcohol consumption as well as smoking and psychiatric illness, several significant associations were found. Among the 20-year-old women, all these variables were significantly more frequent among the illicit drug users. Problematic alcohol consumption variables showed more than six times higher OR, and psychiatric illness was twice as common in this group as compared with non-users. Concerning use of licit drugs, in this younger group of women, AUD, smoking and psychiatric illness had significantly higher ORs, in this case more than twice as high as among those who had not used these drugs. A similar tendency was seen among the 25-year-old women. All substance use variables except for HAC showed a more than threefold increase among illicit drug users, and psychiatric illness was more than doubled. Among the licit drug users in this age group, HAC and psychiatric illness were more than twice as frequent compared to non-users.

Study III

Four distinct clusters of drinking context patterns were identified and labeled '*instrumental effects/frequent drinkers'*, *'social effects/frequent drinkers',* '*various effects/infrequent drinkers'* and '*sporadic effects/infrequent drinkers.* The characteristics of these patterns differed among the groups, with the women in the two more frequent drinking clusters ('*instrumental effects/frequent drinkers'* and *'social effects/frequent drinkers'*) reporting different effects of drinking: one group acknowledged coping effects from drinking and the other group drank more for social reasons. The third group, '*various effects/infrequent drinkers'* recognized several effects but reported low drinking frequencies in different situations. The last group, '*sporadic effects/infrequent drinkers'* was characterized by women with infrequent habits of drinking alcohol, in different settings or together with other people. These women seldom reported effects from drinking. The unweighted distribution between the four clusters were 5.8% in the '*instrumental effects/frequent drinking'* group, 33.8% in the '*social effects/frequent drinking'* group, and 36.1% in the '*various effects/infrequent drinking'* group, while 31.3% of the women belonged to the group of '*sporadic effects/infrequent drinkers'*.

Demographic, social and clinical characteristics also varied by cluster. The '*instrumental effects/frequent drinkers'* mainly consisted of younger women with low educational backgrounds and women interviewed in 2000. This group reported more risk factors from childhood and adolescence, as well as more contemporary use of other drugs and a higher prevalence of psychiatric illness. The '*social effects/frequent drinking'* cluster consisted of single students without children. In

the two other clusters more women were living with a partner and had young children at home. The '*various effects/infrequent drinking'* were younger and in the '*sporadic effects/infrequent drinkers'* more women had a high educational background.

Problematic alcohol consumption also differed significantly among the clusters.
The highest levels concerning HAC and AUD, lifetime and the last year, were found in the cluster '*instrumental effects/frequent drinking',* whereas the prevalence of HED was highest in the cluster '*social effects/frequent drinking'*.
Controlling for socio-demographic variables or childhood experiences did not significantly alter the findings.

Study IV

For each age group, three distinct groups with respect to their patterns of everyday occupations were identified. One cluster consisted of women with low engagement in most activities and who were dissatisfied with their everyday situation. The women in the next cluster reported low engagement in leisure activities combined with a large amount of spare time. This cluster deviated in one respect among the age groups, with the older group being more dissatisfied than their younger counterparts. Finally, in one cluster type the women were highly engaged in and satisfied with their everyday occupations in spite of a low amount of spare time left.

Significant differences concerning demographic characteristics and alcohol consumption were found among the clusters. The clusters characterized by low or varied activity comprised women living with children under the age of 14. These women reported low alcohol consumption. Women belonging to the clusters characterized by high activity, higher educational backgrounds and mostly living with a partner, reported non-problematic alcohol consumption. The clusters reporting more spare time consisted of single women and students. In these clusters HED was more common, and for the adult group, HAC and AUD were also found to a higher extent.

In the regression models, analyzing the associations between the patterns of everyday occupations and problematic alcohol consumption, some differences between the two age groups were found. In the young adult subgroup, there was a more than two-fold significant risk of problematic drinking in the cluster *'Varied activity/more spare time'*. As regards the adult women, the risk of problematic consumption was lower in the cluster *'Varied activity/low spare time'* and higher in the cluster *'Low activity/more spare time'*. None of the findings changed when controlling for age and other socio-demographic covariates.

DISCUSSION

Main findings

Early risk indicators

In Study I, when examining the associations between early risk indicators and patterns of drug use, i.e. occasional use of illicit drugs, frequent use of illicit drugs and frequent use of illicit drugs and addictive sedatives or pain killers, both similarities and differences between the three patterns were found.

In all three patterns of drug use a more than twofold higher prevalence of women who reported delinquent behaviour (truancy, shoplifting or staying away from home without telling anybody) before the age of 18 was found. That delinquent, behavioural factors play an important role both concerning cannabis initiation and developing substance use behaviour has been reported in other Nordic studies (68-69). Regarding cannabis initiation, the association has been shown to be stronger for girls (69). It seems plausible that such a close correlation between behavioural factors and substance use could at least partly be explained by peer influence, participants' attitudes towards drug use and in what kind of social/leisure context the drug use occurs, as has been proposed by other authors (70). Swedish studies have also reported behavioural risk factors to be related to alcohol and illicit drug use or misuse. In those studies protective factors, such as a positive attitude to restrictions or cognitive, social and emotional competence were associated with reduced risks for substance use (71-72).

One difference between the three patterns of drug use in Study I was that factors reflecting the quality of parental relationships were more closely associated with occasional than frequent use of illicit drugs. This finding corresponds with other studies on predictors of substance use onset reporting either that adverse family conditions were important determinants of illicit drug use (3, 73), or that good family relations were related to a lower risk of incident cannabis use (17, 74). The findings in Study I suggest that the lack of a supportive ingredient in the parental relationship was an important factor related to occasional use of illicit drugs and also to more frequent use of illicit and licit drugs.

Socio-demographic factors

In Study I, focusing on early risk indicators, no associations between social factors, e.g. parents' SES and any of the three categories of drug use were found. Furthermore, only a few significant associations with socio-demographic factors were found in Study II. The use of illicit drugs was more frequent among 20-year-old women who were separated or had poor educational backgrounds. These two factors could be an indication of an unconventional social context with frequent changes of partners, maladjustment to school environment and more frequent use of

illicit drugs. No indications of higher drug use among women with low parental social class were found. Consequently, the data does not confirm results from international studies reporting both low childhood SES (15) and high SES and financial resources (75) to be predictive of substance use behaviours.

Another explanation of these findings could be that SES might not have the same impact on drug use among young women compared to young men, a finding reported in a review on SES and drug use (15). Another explanation could be that SES does not have the same importance in comparatively egalitarian societies like the Nordic countries as compared with other wealthy developed societies (76). Such an explanation is supported in a Norwegian study on cannabis use and a Danish study on alcohol consumption, where parental social marginality or classic socio-economic factors did not show any significant impact (73, 77).

A third explanation could be that the results fit better with the selection hypothesis suggested in studies on cannabis use, reporting that drug use preceded adverse outcomes, such as poorer or incomplete education, low income, unemployment as well as lower relationship and life satisfaction (73, 78). As summarized in a review on social epidemiology and substance use, other factors such as contextual determinants, family and social network norms, may be just as important as SES in determining substance use behaviour (3). Exploration of how substance use behaviour is shaped through interaction between individial-level factors and contextual and group level varibles by using methods such as pattern or person oriented methods could be one plausible option for future studies.

Psychiatric illness

The finding in Study I, revealing a significant association between eating disturbances earlier in life and more frequent use of both illicit drugs and pain killers or sedatives, is concordant with other studies reporting a strong association between SUD and eating disorders (79-80). In addition, in the univariate analyses this pattern of drug use included significantly more women who reported psychological problems and other self-reported problems during childhood and adolescence. Such a finding could be seen as contrasting with studies giving no support for depression and anxiety in adolescence as predictors of later cannabis use (26-27). However, the variables measuring psychological problems in Study I were based on self-reporting and were not psychiatric disorders in a clinical sense. These self-reported experiences may together with other early life factors (e.g. family disadvantage or antisocial behavour) be important underlying factors explaining the relationship between mental health and substance abuse. Such associations were discussed in a review of illicit drug use and psychosocial harm, stating that a tendency to experience psychosocial difficulties might increase the likelihood of developing future problematic drug use (81).

The association between concurrent psychological problems and drug use was confirmed in Study II, showing that psychiatric illness (mostly anxiety and depressive disorders) more than doubled the risk of being a drug user. The causal direction of this association cannot be determined from cross-sectional studies such as this one. A similar association between substance use (e.g. cannabis) and mental health has also been reported in longitudinal studies, but without finding strong support for causality in either direction (26, 81-82). However, both non-medical use of prescription drugs (83) and concurrent use of other drugs (84), have been reported as leading to future substance use disorders.

Concurrent use of other substances

Studies I and II revealed significant associations between alcohol consumption and smoking as explanatory variables, and illicit and licit drug use. Findings in Study I showed that early alcohol debut was associated with all three drug use categories, whereas smoking regularly before the age of 15 was only associated with more frequent use of drugs. Such a close association between early use of licit substances (i.e. nicotine and alcohol) and future illicit drug use has been reported in several studies (84-85). In addition, results from a Finnish study showed a strong association between early onset of smoking and the development of any substance use disorder (68). One possible explanation for this could be that, owing to decreasing figures during the last two decades (5), smoking might now be considered as deviant behaviour and correlate more strongly to frequent or problematic drug use behaviour. Further factors found to predict the use of cannabis in other studies are availability of drugs, drug use among peers and a more positive attitude towards future drug use (17).

Patterns of drinking context

In Study III a person-oriented approach was used to explore drinking patterns reflecting experienced effects and social and situational factors related to drinking. Four distinct clusters were identified. They were summarized into two forms of drinking behaviour: infrequent and frequent drinking in different settings. These findings are supported by other studies, also using cluster analysis, which found two types of drinking patterns: groups of normative or light drinkers, and groups with more problematic or risky drinking (38, 41). In each cluster in Study III, the women acknowledged effects of drinking to various degrees, and different associations with the variables measuring problematic alcohol consumption were found.

The *instrumental effects/frequent drinking* cluster reported more coping effects of alcohol, such as finding it easier to fall asleep, improving mood when feeling depressed, having less pain, and experiencing better work performance. In contrast to the other clusters, the women in this cluster reported drinking alone, both at home and elsewhere. This cluster showed the strongest associations with HAC and AUD.

The cluster labelled *social effects/frequent drinking* acknowledged social effects from drinking alcohol, such as becoming less shy or more relaxed and having more fun. Like the previous group, they reported frequent drinking in different settings; however they never drank alone. In this group HED was more common. In comparison, a recent study reporting on motivational patterns for drinking alcohol among Swedish adolescents ended with a slightly different conclusion: social-enhancement motives and to a lesser extent, coping motives, were related to alcohol consumption and alcohol-related problems (86).

In addition, when drinking effects were not combined with frequent drinking, the associations with problematic alcohol consumption were not as strong as those seen in the frequent drinking clusters. Thus the results indicate that the effects of drinking and factors concerning the situations where drinking occurs are important interacting factors, both contributing to the explanation of women's drinking patterns. Such a conclusion is supported by studies of young people's drinking and the relationship between drinking settings and individual characteristics (44, 48).

In this study, the variables defining drinking context were calculated from the answers to questions on the effects of drinking (*why*), and *where* and *with whom* the women drank. This could be inferred as fitting the triadic components of Social Cognitive Theory, with *why* belonging to the personal sphere and *where* and *with whom* connected both to the environment and to the action itself. According to this theory, drinking behaviour can be regarded as a construction of the reciprocal influences between an individual's own experiences and the impact of environmental and social factors (46).

Other factors such as childhood experiences or factors related to family life could also be important in explaining drinking behaviour, implying that underlying factors may contribute to the ways in which individuals adopt certain drinking behaviours (87-90). Still, the higher risk for HAC and HED remained significant even after controlling for other possible explanatory variables taken from the socio-demographic domain and childhood experiences, implying that the drinking context is an important factor in explaining differences between groups, at least with respect to risky drinking. Thus contextual factors could play an important role in drinking behaviour even if the primary cause is something else, and therefore matters related to the drinking context could be of importance when working with changing problematic drinking behaviour in vulnerable subgroups.

Patterns of everyday occupations

In Study IV, which used a person-oriented approach built on measures for engagement in and satisfaction with everyday life domains, three distinct clusters of women with respect to patterns of everyday occupation were found in both examined age groups.

Significant differences were found between the clusters concerning associations with alcohol consumption. In both age groups more women were found to drink in a problematic way in the clusters with little or moderate engagement in leisure activities combined with more spare time available. For the young adult women, the associations with variables measuring problematic alcohol consumption remained significant even after adjusting for socio-demographic variables (e.g. income, marital status or education), indicating that the engagement in everyday occupations have a stronger impact on drinking behaviour than such socio-demographic factors. In spite of a high prevalence of problematic drinking, the young adult women reported high levels of satisfaction with their everyday occupations. One explanation could be that drinking, even large amounts of alcohol, had not (yet) had any negative impact on the pursuit of satisfactory everyday life. Alcohol could also be experienced as part of the social context of the lives of young women, rendering positive outcomes, such as quality time with friends, less tension or easier socializing, as was shown in another study (91). Consuming alcohol could also be appreciated as a separate leisure activity, e.g. drinking for fun at parties, confirmed in a study among college students, showing that students enjoyed alcohol-related activities more than alcohol-free activities (92). The authors suggested that lack of enjoyable alcohol-free activities, combined with unoccupied free time, could increase alcohol consumption.

In contrast to their younger counterparts, the cluster of adult women, including more problematic drinkers with little engagement in employment and leisure activities, reported low satisfaction with these domains. This indicated that they had a scarcity of satisfying engagements. Such a connection between being dissatisfied with everyday factors and problematic alcohol drinking has also been reported elsewhere (90, 93). One explanation for the association in the older age group between not being satisfied and having problematic drinking behaviour, could be that in the transition to more adult life stages, this pattern of everyday occupations, including more frequent drinking, is no longer experienced as an age appropriate or desirable lifestyle. The associations between patterns of everyday occupations and problematic alcohol consumption in this subgroup did not stay significant when adjusting for other socio-demographic factors, such as caring for young children or living with a partner. Having a family role, such as motherhood, has previously shown diverging associations with outcomes in terms of health, life satisfaction or problematic drinking (94-96). Caring for young children has been associated with a lower risk for AUD (90), but has also been reported to influence heavy drinking differently in different countries, partly depending on the combination with other social roles (95). Having children generated both hassles (such as worries and conflicts) and uplifts (e.g. happiness and affection) in working mothers' evaluations of their everyday lives (94).

In contrast to the problematic drinking cluster, a group of women who were satisfied with their engagement in all occupational domains was identified. Neither problematic drinking nor low alcohol consumption was common in that cluster. With respect to research on social roles, and assuming that these women in their everyday occupations also had the roles of a partner, a caregiver and an employee, this result confirms to some extent previous findings concerning a larger number of roles and lower prevalence of heavy drinking (97). In addition to other studies on social or family roles and alcohol consumption (8-9, 95), Study IV contributes by adding perceived satisfaction and degree of engagement in everyday occupations to the research area of life roles and drinking. This pattern of everyday occupations with high engagement in activities and high satisfaction could be understood as indicating occupational balance, described as perceptions of a satisfactory combination of daily occupations corresponding to individual needs and desires (52, 98-100).

To capture the integrative element between person, environment and occupations in everyday life different measures were included in this study. The four measures for employment status, household work, leisure activities and spare time were chosen to reflect both the dimension of participating in different occupations and environmental aspects associated with occupations (52-53). The personal dimension was measured with self-reported satisfaction with each domain aiming to reflect the subjective experience of occupational engagement (55, 99). A satisfactory balance of personal needs and desires in everyday occupations is hypothesized as a lifestyle contributing to well-being and health (57).

If one interprets the cluster that is characterized by low engagement, low amount of spare time and dissatisfaction, as an unbalanced pattern of everyday occupation, one can assume that this cluster would be associated with a higher risk of poor health, and, in the case of alcohol, with problematic alcohol consumption. However, this was not the case, and also other studies on health behaviour have produced similar unexpected results. In a study of risk and protective factors and their impact on self-assessed health in women, moderate alcohol drinking was associated with good perceived health as well as with participating in sport and social support (101). Furthermore, a study of students' lifestyle behaviour found no clear relations between binge drinking and psychological stress or in relation to low participation in physical activities (102).

Turning back to the patterns of everyday occupations, problematic drinking was not associated with overall lower engagement and dissatisfaction, but with having spare time for one's own needs and not having used this time to become involved in leisure time activities.

Methodological considerations

One limitation of these studies is the narrow study area: a Swedish metropolis, more precisely, the central and western parts of Gothenburg, and the second largest city in Sweden (population about 500,000, year 2010), which hampers the possibilities for drawing general conclusions. On the other hand, this thesis contributes by investigating a non-clinical sample of women, and further research on aspects of women's drug use has been warranted (33-34).

The data presented in this thesis date eight to ten years back, and more recent prevalence data shows a tendency, more obvious concerning illicit drug use, towards stabilizing figures, although at higher levels than during the 1990s (5). Since there have been no major changes in social conditions in Sweden during the last decade, the findings on the associations between patterns of substance use and everyday life experiences may still be valid today. Assuming that these associations still are relevant, the results can offer new knowledge for identifying risk groups on a population level. The fact that problematic substance use and psychiatric symptoms still are increasing, especially among young women (103), further strengthens the relevance of this thesis.

The attrition rates for the four studies was below 30%, except for the women born in 1975 who were invited to participate in the second interview wave in 2001 (36.6%). The response rate is probably influenced by time, as young adults have become more mobile in recent years and also less willing to participate in population studies (104). A previous analysis did not reveal any significant differences between the respondents and the attrition group concerning socio-demographic variables and alcohol consumption (58). This finding, and the fact that there was a strong association between problematic alcohol consumption and the use of other drugs, make it unlikely that there are any substantial differences in the prevalence of drug use between the group who participated in the study and the group who did not. Hence, most likely, this attrition rate has not biased the estimates towards over-reporting or underreporting in any significant way.

The data presented in this thesis were used with a cross-sectional structure in all four studies, and therefore no strict causal relations can be inferred. Although a longitudinal perspective is lacking, some additional comments can be made about time and age effects. The way the questions on early risk indicators were asked in Study I imply that in most cases these factors were prevalent before the incidence of drug use. The *instrumental effects/frequent drinking* cluster more strongly associated with problematic alcohol consumption which emerged in Study III consisted of significantly more 20-year-old women, as well as more women from the 2001 interview wave. Such a finding could suggest that drinking for coping reasons has become more common among younger women in recent years. This

could be a result of the reported increased availability of alcoholic beverages (e.g. growing volumes of private imports) during the study period (5), but another explanations could be the increased prevalence of psychiatric problems among young women during the same period (103). The age effect is supported by the investigation of the 137 women who were interviewed twice in the same study, where almost half of them had changed drinking clusters during the five-year period. In Study IV, exploring everyday occupations and alcohol drinking, some age effects were found. All clusters in the young adult subgroup showed a higher occurrence of problematic alcohol drinking, but in contrast to their older counterparts these young women were more satisfied with their everyday occupations. Without the possibility of determining whether everyday occupations lead to specific consumption behaviours or if the use of alcohol determines specific patterns of everyday occupations, the findings still can be said to contribute to increased understanding of drinking habits.

Study III focused on using cluster analysis to identify drinking patterns in groups of young adult women. Others have examined the social context of alcohol use by comparing adolescents with older adults. Referring to such findings, i.e. that contextual variables affect frequency of alcohol use as well as alcohol abuse for both age groups (105), cluster methods could also be fruitful in studying older female cohorts, as well as men.

In Study IV, on the associations between women's patterns of everyday occupations and alcohol consumption, alternative explanations and limitations need to be considered. No early risk factors were added to the analyses and it cannot be ruled out that other factors, such as the early onset of regular drinking or family background factors, could be of relevance to explaining both problematic alcohol consumption (106) as well as the development of different occupational patterns. The variables chosen for defining the occupational patterns in the present study were not originally constructed for that purpose. Thus it is possible that not all relevant aspects of everyday life were captured in these questions. Still, a strength of the study is the novel application of integrating several life domains in the field of alcohol research, leading to a more extensive exploration of alcohol consumption in women's lives.

As regards interactive models of human behaviour such as the CMOPE model (54) or SCT (46), factors from the personal, environmental and occupational or behavioural domains are assumed to contribute to explaining behavioural outcomes, and an alteration in any domain (e.g. the environment) is assumed to lead to behavioural change (54). Furthermore, using an interactive approach such as cluster analysis could reveal new knowledge (35) which can open up new, multimodal approaches, aimed at changing problematic drinking habits.

Main conclusions

Factors from everyday life contribute to the development of problematic use of alcohol and drugs. Concerning illicit and licit drug use, behavioural factors from childhood and adolescence, together with early onset of alcohol drinking and smoking, were significantly associated with future drug use. In addition, self-reported psychological problems, such as eating disturbances, showed a stronger association with a combined use of illicit and licit drugs. Concerning problematic alcohol drinking, HED, HAC and AUD were significantly more prevalent in a pattern where acknowledging instrumental (coping) effects from drinking was more common. Problematic alcohol use was also more prevalent in a pattern of everyday occupations characterized by low engagement in leisure activities and a large amount of spare time. In most cases, socio-demographic factors did not change these results.

Implications

The results support continued restrictive policies concerning adolescent drug use, and parental and community actions encouraging conventional behaviour in young women, such as abstinence-oriented activities. The strong associations between illicit and licit drug use, alcohol consumption, smoking, and psychiatric illness point to a higher risk for developing any of these problems once one or several of these habits have been established. These findings suggest two possible strategies. The first is preventive work, where practitioners should be more attentive to investigate patterns of multi-substance use in young women. The other concerns future research regarding the role of mental illness in contributing to problematic substance use in the younger age groups.

Furthermore, the results underline the importance of identifying groups of individuals with different drinking patterns, in order to tailor preventive actions. In such work, considering both positive and negative effects of drinking as well as situational factors is important. When supporting women in avoiding additional negative alcohol consumption habits, discussing the role of alcohol consumption in the performance of different everyday occupations could prove to be of great importance. When planning for preventive and treatment actions, the findings provide new options and ideas. On a societal level, one example would be providing alcohol-free activity areas. On the individual level, an example would be finding suitable and engaging activities in several everyday life domains, as opposed to focusing on specific risk factors.

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