

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

## Public Health

journal homepage: [www.elsevier.com/puhe](http://www.elsevier.com/puhe)

## Original Research

# Sample selection may bias the outcome of an adolescent mental health survey: results from a five-year follow-up of 4171 adolescents



V. Kekkonen <sup>a,\*</sup>, P. Kivimäki <sup>b</sup>, H. Valtonen <sup>c</sup>, J. Hintikka <sup>d,e</sup>,  
T. Tolmunen <sup>a,b</sup>, S.M. Lehto <sup>a,b</sup>, E. Laukkanen <sup>a,b</sup>

<sup>a</sup> Department of Adolescent Psychiatry, Kuopio University Hospital, P.O. Box 100, FI-70029 Kuopio, Finland

<sup>b</sup> School of Medicine, University of Eastern Finland, P.O. Box 1627, FI-70211 Kuopio, Finland

<sup>c</sup> Department of Health and Social Management, University of Eastern Finland, P.O. Box 1627, FI-70211 Kuopio, Finland

<sup>d</sup> Department of Psychiatry, Päijät-Häme Central Hospital, Keskussairaalankatu 7, FI-15850 Lahti, Finland

<sup>e</sup> School of Medicine, University of Tampere, FI-33014 University of Tampere, Finland

## ARTICLE INFO

## Article history:

Received 14 April 2014

Received in revised form

26 November 2014

Accepted 28 November 2014

Available online 11 February 2015

## Keywords:

Attrition

Consent

Dropping out

Follow-up

Mental health

Responder

## ABSTRACT

**Objectives:** The representativeness of the data is one of the main issues in evaluating the significance of research findings. Dropping out is common in adolescent mental health research, and may distort the results. Nevertheless, very little is known about the types of systematic bias that may affect studies in a) the informed consent phase and b) later in follow-up phases.

**Study design:** The authors addressed this gap in knowledge in a five-year follow-up study on a sample of adolescents aged 13–18 years.

**Methods:** The data were collected using self-report questionnaires. The baseline sample consisted of 4171 adolescents, 1827 (43.8%) of whom gave consent to be contacted for a follow-up survey, but only 797 (19.1%) participated in the follow-up. Binary logistic regression models were used to explain the participation.

**Results:** Young age, female gender, a high number of hobbies, good performance at school in the native language and general subjects, family disintegration such as divorce, high parental employment, and symptoms of depression and anxiety were associated with both consent and participation. However, the effect of mental health aspects was smaller than the effect of age and gender.

**Conclusions:** This study confirmed the possibility of systematic selection bias by adolescents' sociodemographic characteristics. The representativeness of the study sample might have been improved by more intense recruitment strategies.

© 2014 The Royal Society for Public Health. Published by Elsevier Ltd. All rights reserved.

\* Corresponding author. Tel.: +358 50 540217; fax: +358 17 172 986.

E-mail address: [virve.kekkonen@kuh.fi](mailto:virve.kekkonen@kuh.fi) (V. Kekkonen).  
<http://dx.doi.org/10.1016/j.puhe.2014.11.015>

0033-3506/© 2014 The Royal Society for Public Health. Published by Elsevier Ltd. All rights reserved.

## Introduction

Successful recruitment is essential for a representative study sample. The recruitment of adolescents in longitudinal studies concerning mental health is difficult and drop-out rates often exceed 50%.<sup>1</sup> Attrition among teenagers has various causes related to both developmental and environmental factors, such as adolescent risk behavior and the lack of parental motivation.<sup>1,2</sup>

To review the literature concerning recruitment studies on adolescent mental health, a PubMed search was conducted in November 2013 for studies published since 2002. Only papers in English were included. Study participation, mental health, recruitment, attrition, adolescence, retention, and consent were used as search terms. Papers were selected based on their abstracts. Altogether, eleven studies describing study recruitment difficulties were found (Table 1).

As shown in Table 1, the study protocol leading to the lowest rates of attrition was the recruitment of individuals through referrals from other health care systems.<sup>10,11</sup> Furthermore, incentives were offered in most of these studies.<sup>3,4,6,10,13</sup> Compensation significantly increased compliance in two studies concerning drug use.<sup>6,13</sup> Recruitment was most unsuccessful among anorexia nervosa patients.<sup>9,12</sup> A lower parental educational level, a living environment including multiple deprivation, and non-Caucasian ethnicity reduced study participation.<sup>3,5,8,11</sup>

Concerning study sample representativeness, six of the above studies described the possible selection bias with regard to study questions related to mental health issues or socio-economic factors.<sup>3–5,7,8,11</sup> One of these studies evaluated both recruitment methods and factors associated with attrition.<sup>11</sup> A lower educational level of the parents reduced their willingness to provide consent for the participation of adolescents.<sup>3</sup> Moreover, school performance among non-responding adolescents aged 15–16 years was lower in comparison to responders.<sup>4</sup> Compared with responding children, non-responding children aged 10–12 years also had more problems at school and parents with a lower educational level, but no association was found between adolescent psychopathology and individual characteristics.<sup>5</sup> A lower response rate was also reported among children and adolescents (aged 15–16 years) who belonged to families with a low socio-economic status.<sup>8</sup> In a Finnish longitudinal study among ninth-grade students,<sup>7</sup> a lower parental educational status and lower school performance of adolescents were associated with high attrition rates. However, depression was not systematically associated with attrition.

The rest of these studies concentrated on various methods for improving adolescent recruitment and avoiding sample attrition, such as sharing recruitment information with medical facilities, health care providers, or the juvenile justice system, advertising in newspapers or on the radio, printing flyers, or providing incentives or other compensation.<sup>6,9,10,12,13</sup> These studies indicate that the recruitment methods and potential incentives might have an effect on study sample selection. In addition, consenting children, adolescents, or parents may differ from those who refuse participation. The associations between alcohol or illegal

drug use and participation were not examined in these papers.

Due to the scarcity of previous research, the authors evaluated whether factors such as age, gender, socio-economic status, mental health characteristics, or the use of alcohol and other drugs associated with the willingness of adolescents to provide consent and participate in a follow-up study after the baseline phase in a mental health-oriented study. In addition, the authors investigated whether systematic selection biases were associated with the mental health symptomatology and alcohol or drug abuse in the study subjects.

## Methods

### Baseline data

The baseline study setting has previously been described.<sup>14,15</sup> In brief, the participants in the baseline study were pupils from secondary and secondary-modern schools in Kuopio in 2005. Kuopio is a city in Eastern Finland with approximately 90 000 inhabitants at the time (currently 105 000). The data were collected with structured self-report questionnaires in comprehensive, upper secondary and vocational schools under the supervision of a research assistant or teacher of the class. The study form consisted of well-validated questionnaires (see Section [Measurements and questionnaires at baseline](#) for a description of the questionnaires) concerning the physical and mental health of the participants.

The target population comprised 6421 adolescents aged 11–21 years in 2005. The response rate was 65.5%, giving a sample of 4214 adolescents. Altogether, 43 questionnaires were excluded due to an age of 12 or younger or 19 or older, leading to a final sample of 4171 adolescents. From this population, 1827 (43.8%) provided consent to be contacted for a follow-up study (see Fig. 1).

### Follow-up data

The follow-up study was conducted in 2011. Current postal addresses were obtained from the Finnish Population Register Centre. A self-rated questionnaire accompanied by a return envelope was sent by mail to each participant whose postal address could be retrieved ( $n = 1585$ ). The questionnaire was resent up to two times to those whose response was not received in one month. Finally, those participants who did not answer and whose telephone numbers were public ( $n = 409$ ) were contacted by telephone. Altogether, 797 (50.3%) responded (See Fig. 1).

### Measurements and questionnaires at baseline

The sex, age, and educational level of the study participants were determined. Parental marital status alternatives were: 'married or living with a partner' and 'divorced or other'. 'Other' included an unknown marital status and widowed or dead parents. The occupations of both the mother and father were reclassified in two groups: 'white-collar worker', such as a 'higher employee' or 'self-employed', and 'blue-collar worker', such as a 'worker', 'lower employee' or 'other'. Here,

Download English Version:

<https://daneshyari.com/en/article/10516260>

Download Persian Version:

<https://daneshyari.com/article/10516260>

[Daneshyari.com](https://daneshyari.com)