# Comparing fathers and mothers who have social work contact: A research note

**Abstract**

High quality evidence about the characteristics of fathers who have contact with social workers is relatively scant.  This research note uses a British birth cohort study, the Avon Longitudinal Study of Parents and Children (n=13,988), to describe and compare the characteristics of fathers and mothers who have had contact with a social worker and to examine the predictors of social work contact. The research note demonstrates the use of classification trees, as an alternative approach to logistic regression, for predicting social work contact. Classification trees have the advantage of not requiring researchers to specify interactions in advance and allow for the creation of more complicated predictive models. Just four variables predicted social work contact in the classification tree model: the respondent having experienced a job loss over the last year, alcohol problems, depression, and emotional cruelty from a partner. We find that the gender of the respondent did not help predict social work contact after other factors are accounted for, and the predictors of social work contact were similar for both fathers and mothers.

**Keywords**: ALSPAC, Classification trees, Fathers, Social work

## Introduction

Relatively little is known about the characteristics of fathers who receive social worker contact. This lack of knowledge also extends to male partners of mothers who, whilst not biologically related to the children, may also be significant care-givers. Increased knowledge is vital to inform the provision of services for whole families. This research note examines the

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characteristics of these men using a sample of individuals from a large-scale British cohort study. We compare the characteristics of fathers to those of mothers who have had social work contact. Furthermore we demonstrate the use of classification tree models (Breiman *et al.* 1984) as a means of predicting whether fathers or mothers are more likely to receive social work contact. Classification trees have a distinct advantage in terms of modeling complex interactions and interpretation compared to the more commonly used logistic regression model.

## Background

There is a general consensus in the child welfare field that practice tends to focus on mothers and that fathers, including step-fathers and social fathers, tend not to be engaged (Scourfield, 2003; Strega *et al.*, 2008). There has, however, been relatively little research on fathers in child welfare cases, and there is a dearth of high quality evidence about the characteristics of fathers who come into contact with social workers and how they compare with mothers. Some studies have been conducted using administrative data, cross-sectional surveys, or cohort studies. For example, Strega *et al.* (2008), using administrative data in Canada, noted high proportions of fathers on child welfare caseloads with alcohol and drug problems and violence towards the children's mother. Berger *et al* (2009), using the US Fragile Families and Wellbeing Study, found that mothers living with men who were not the biological fathers of all their children were more likely to be involved with child protective services. This association persisted after controlling for characteristics of mothers and fathers. Dufour *et al.* (2008)'s incidence study of neglect cases in Canada found that fathers struggled less with personal problems than mothers and that fathers not biologically connected to children had greater problems than biological fathers. Malm *et al.* (2006) compared non-resident fathers of foster children with the children's mothers, via a

practitioner survey in the US. They found the demographic characteristics of fathers to be broadly similar to those of mothers, but fathers were slightly older and more likely to be married at some point. In the UK, however, the evidence on this issue has been largely qualitative and where there is quantitative research on social work contact, this tends not to separate out parents by gender (e.g. Henderson *et al.* 2015). Fathers are non-traditional clients of family services and in this context it can be challenging to engage them. More evidence is needed if service responses to fathers are to be improved.

**Methods**

The Avon Longitudinal Study of Parents and Children (ALSPAC) is a longitudinal study of children born in Avon, UK between 1991 and 1992. ALSPAC recruited 14,541 pregnant women with expected dates of delivery 1st April 1991 to 31st December 1992. These initial pregnancies resulted in 14,062 live births (roughly 80% of all live births in the Avon area during this time period) with 13,988 children alive at 1 year of age. Individuals in the area were slightly more affluent compared to the average residents in England at the time (Boyd *et al.* 2013).

Information about whether the mother of an ALSPAC child has been in contact with a social worker in the past year is available when the study child was 6 years 1 month old. Similar information about mother's partner is also available at around the same point in time. In both cases this information was gathered from questionnaire responses from the mother and her partner respectively. One downside to this indicator is that it contains no information as to the nature of this contact, its duration or intensity, or the reason for contact. Social work in England is free at the point of use and funded by local taxation. In the late 1990s when these ALSPAC data were collected, the term 'social worker' would most commonly have been used for

professional staff employed by the state, whose main priority is to fulfil a legal mandate. In relation to children this includes protection from harm and meeting need, although only a very high level of need would meet the threshold for any receipt of services. Although the ALSPAC social work question is of a very general nature, it does give an indication of *routine* social work contact. It is important for service planning to establish the social patterning of routine use of social work.

For the purposes of gender comparison, we have restricted mothers' partners to male partners only, ignoring the 22 who were female partners (0.3% of partners in the study). In the majority of cases these men were the biological father of the ALSPAC study child (94.0%) and/or were living with the mother (95.5%). As such, we refer to mothers' male partners as 'fathers', using that term inclusively, in the rest of the paper.

The ALSPAC also includes a variety of other information about adversities and life circumstance that are of interest. In this paper we look at these circumstances or events that have occurred in the previous year. The choice of variables was influenced by previous research using ALSPAC which looked at factors predicting the likelihood of children being placed on the child protection register before the age of 7 (Sidebotham *et al.* 2006). The number of variables was also somewhat limited by the need to have same set of information for mothers and fathers in the analysis. The variables selected were: whether the respondent has been depressed; got married; got divorced; been hospitalized; taken cannabis; has an alcohol problem; lost their job; has gained a new job; and whether the respondent's partner has been emotionally cruel to them.

In the first part of the paper we describe and compare the profiles of mothers and fathers who receive social work contact to compare the demographic characteristics of those who have had social worker contact to those who have not. In the second part of the paper we examine

which events are associated with social work contact for both mothers and fathers. To do this we make use of classification tree models (Breiman *et al.* 1984). This a technique more frequently used in data mining; it approaches the problem of making predictions in ways very different from logistic regression.

**Classification trees**

Whilst many researchers may be familiar with interpreting odds ratios from logistic regression models, these models have a number of drawbacks. First, despite their familiarity, researchers often misunderstand what odds ratios are—commonly confusing them with relative risks (Davies, Crombie and Tavakoli 1998). Second, logistic regression models cannot account for complex interactions between different predictors *unless* these are specified by the analyst. For instance, imagine that having an alcohol problem increases the odds of an individual receiving social work, but only for men and not for women. In this case, the logistic regression model would not take this interaction into account unless it was specified in the model. There is an impossibly large number of potential interactions to include in a model - especially when we are dealing with very complex phenomena. Some of these issues with logistic regression models can be resolved by using classification trees.

[Insert figure 1; Note please resize to half a page]

Like logistic regression models, classification tree models also use data to produce models that can predict the probability of whether a case falls into a certain group. In our study we are interested in whether fathers and mothers had social work contact or not. However, classification tree models use decision trees as their basis for making predictions. These models can be easier to interpret than logistic regression models.  Figure one shows an example classification tree

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predicting whether a passenger on the HMS Titanic survived or not. The model was made using a subset of the total passenger data, and uses details on a passenger's age and gender to create the predictive model. To understand how a prediction is made we simply follow the branches of the decision tree. For instance the first thing we need to know is whether a passenger was male or female. If they were female then the model predicts that they have a 75.5% chance of surviving. If the passenger was male then we need to consider the age of the passenger: those aged 6 or below had a 66.7% chance of survival, whilst only 17.9% of older male passengers actually survived the incident.

The decision tree captures an interesting interaction between age and sex: if a passenger was female then their age adds little or no extra information regarding their chances of survival, whilst the survival of male passengers is highly dependent on their age. It is possible to specify this sort of interaction between gender and age in a logistic regression model, however this interaction has to be specified in advance by the analyst. This is clearly unfeasible when there is even a modest amount of information in the dataset because there are so many interactions to consider. Furthermore, prior theories or previous studies may not offer any guidance as to which interactions are important or - more likely - they may recommend far too many interactions. In the latter case, where we are fitting complex statistical models with too little data, we run the risk of creating models with results that are not generalizable to a wider population (Babyak 2004). In contrast, classification tree models will inductively only include interactions that improve predictions. This sort of flexibility makes classification tree models particularly useful if we wish to see whether different factors are important for predicting whether a father or mother has social work contact. Classification trees models have been used in a range of fields from genetics to

ecology (De'ath and Fabricus 2005; Dudoit, Fridlyand and Speed 2002), but rarely in welfare-related fields such as social work (see Johnson, Brown, and Wells 2002 for an exception).

**Results**

In ALSPAC around 4.2% of mothers with male partners had contact with a social worker. In comparison only 2.8% of fathers had contact with a social worker. There are 67 cases where both fathers and mothers had social work contact. However there are 95 mothers who reported social work contact where the father did not, and 50 fathers who reported social work contact where the mother did not. There were 3,954 couples where neither partner reported social work contact.

[Insert table 1]

Table 1 shows the proportion of individuals receiving social work contact who had experienced depression in the last year, had been hospitalized, and so forth. It also shows the proportions for those who did not have social work contact. For both mothers and fathers, those who had contact with social workers were far more likely to have had depression in the last year, been the recipient of emotional cruelty from their partner and to have an alcohol problem. Mothers with social work contact were more likely to have been hospitalized in the last year: 23.5% compared to 13.5% for those without social work contact. In contrast, fathers with social work contact were not more likely to have been hospitalized than those without social work contact. However, fathers who had social work contact were more likely to have lost their jobs in the past year (10% compared to 5.5% of those without social work contact). Mothers who had social work contact were not more likely to have experienced job loss, possibly because fewer mothers had been in work to begin with. Mothers who had social work contact were more likely to have taken cannabis in the last year (8% compared to 3.9%). Men who had social work

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contact were less likely to be the biological father of the ALSPAC study children than men who did not have social work contact (81.7% compared to 94.5%). However men in both groups were equally likely to be living with the mother.

[Insert figure 2; Note please resize to half a page]

Figure 2 displays the results of the classification tree model for predicting social work contact in the past year. The model technique can inductively fit interactions between gender and other predictors associated with the individual's life situation in the past year, allowing us to further understand whether different factors predict social worker contact for fathers and mothers. However, the results of the final classification tree model show that it needs to use at most only four pieces of information (out of the nine variables entered) to predict social work contact: whether the participant was depressed, had an alcohol problem, experienced emotional cruelty from their partner, or lost their job in the last year. Given these four pieces of information, the respondent's status as father or mother does not actually help us predict whether they received social work contact or not. The most important factor in the making predictions was whether a respondent experienced depression in the last year; only 2.4% of those who did not experience depression had social work contact. Those who had experienced both depression and alcohol problems were almost eight times more likely to have social work contact (19% based on 58 cases, $p<0.001$). A higher proportion of those who had been depressed, had alcohol problems, experienced cruelty and lost their jobs had social work contact. However, only ten individuals had this unique combination of life circumstances so these is a considerable margin of error around what the true proportion would be in the general population. As explained, the absence of gender as a predictor in the model also means that the same factors are used to predict social worker contact for both fathers and mothers.

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## Conclusion

The different profiles of mothers and fathers with social workers suggested by the bivariate analyses (Table 1) are in keeping with a gendered picture of family life, with lack of work seen as more problematic for men. The finding that non-biological fathers were more likely to have had social work contact than biological fathers is consistent with Strega *et al*.'s (2008) Canadian child welfare research. However, the finding from the multi-variate classification tree that there was no interaction with gender would suggest that the service needs of fathers and mothers are in fact more similar than different, namely the need for help with employment, alcohol, depression and damaging relationships. An overall similarity of fathers' and mothers' problems was also noted by Malm *et al*. (2006) in the United States, when looking at the parents of children in foster care.

Given the similarity of mothers' and fathers' problems, it may be that the challenge of engaging fathers in social work services lies less with the nature of their difficulties than the way of approaching them. This would imply the need for practitioners to develop novel techniques for engaging with fathers. However, two notes of caution must be sounded about the finding of similar problems for both parents.  The first is in relation to the gender symmetry in reporting cruelty from a partner, since most evidence on domestic abuse from agency samples shows a highly gendered picture of men abusing women (Johnson, 2006). In the light of this evidence it is possible that male perpetrators are deflecting responsibility onto their partners. Second, an acknowledged a limitation of the study is that the social work variable relied on self-report and – as with all UK cohort studies - was not sufficiently detailed to capture nature, intensity or focus of the social work interventions themselves.

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Predicted probability of survival
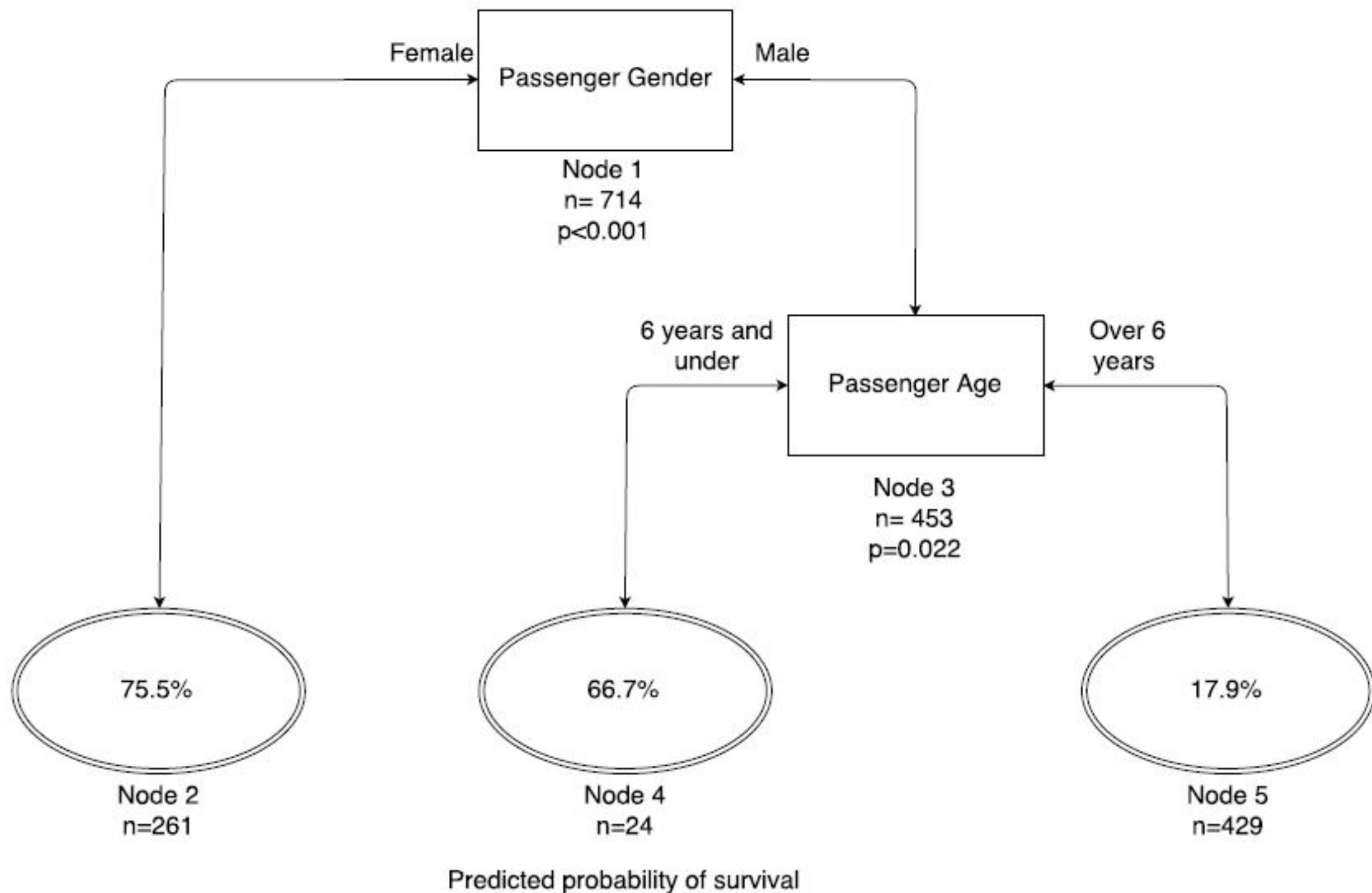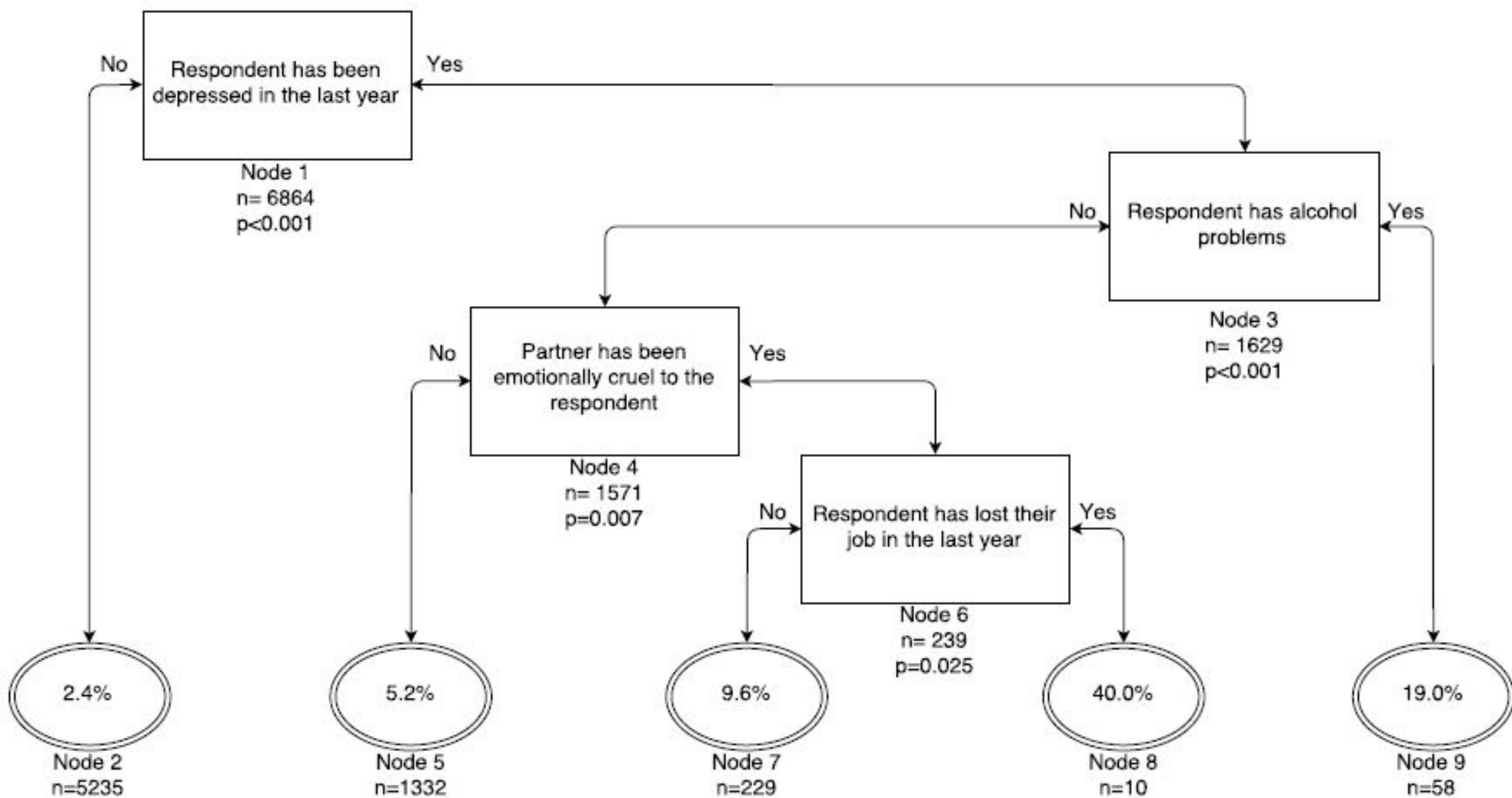
Predicted probability of receiving contact

| Variables | Fathers | | | Mothers | | |
| --- | --- | --- | --- | --- | --- | --- |
| | No SW contact | SW contact | Fisher exact (p) | No SW contact | SW contact | Fisher exact (p) |
| Had depression in the last year | 25.30% | 53.90% | <0.001 | 21.60% | 40.50% | <0.001 |
| Married in the last year | 1.00% | 4.20% | 0.009 | 1.10% | 2.20% | 0.103 |
| Divorced in the last year | 0.60% | 0.80% | 0.497 | 1.50% | 2.80% | 0.057 |
| Hospitalised in the last year | 7.20% | 10.10% | 0.366 | 13.50% | 23.50% | <0.001 |
| Taken cannabis in the last year | 6.60% | 10.00% | 0.135 | 3.90% | 8.00% | 0.001 |
| Partner has been emotionally cruel | 6.60% | 14.20% | 0.003 | 6.50% | 14.20% | <0.001 |
| Has an alcohol problem | 1.70% | 7.60% | 0.002 | 1.00% | 3.10% | 0.003 |
| Lost job in last year | 5.50% | 10.00% | 0.039 | 3.20% | 2.50% | 0.624 |
| Gained new job in last year | 19.80% | 22.50% | 0.413 | 21.50% | 23.60% | 0.364 |
| Biological father | 94.50% | 81.70% | <0.001 | | | |
| Lives with mother | 98.80% | 98.30% | 0.654 | | | |