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Judgements of health and social care professionals on a child protection referral of an unborn baby: factorial survey

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Declaration of Interest

The authors have no conflict of interest to declare.

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Abstract

Background: Midwives and children's services social workers have responsibilities to identify and support pregnant women where there are child protection concerns. Professionals seek to anticipate the risk of harm and initiate interventions to provide support to families. There is little research on how professionals prioritise risk factors and the challenges they face in protecting unborn babies.

Objective: To measure the impact of identified risk factors regarding child protection referrals of unborn babies on the professional judgements of midwives and children's services social workers.

Methods: A factorial survey design using vignettes with randomised factors within a standardised structure, administered digitally using Qualtrics software.

Participants & setting: Midwives (n=250) and children's services social workers (n=88) from one Health and Social Care Trust in Northern Ireland.

Results: One thousand and ninety-six vignettes were completed by 118 participants. Analysis using multiple regression showed that the risk factors together accounted for 44% of the variance in perceived risk of harm and of the variance on perceived need for a referral. The significant Independent Variables (IVs) in order included: *drug use, alcohol use, age, antenatal care attendance, mental wellbeing, domestic violence and mother's childhood experiences*. There were no significant differences between midwives and social workers regarding judgements about important risk factors.

Conclusions: This survey provided an ordering of major risk factors influencing decision making to protect an unborn baby from the perspective of experienced social workers and midwives. The study helps professionals in judging the seriousness of risk factors. The interaction effects between risks requires further research.

Key words: Child protection; decision making; factorial survey; professional judgement; referral; risk assessment; unborn baby.

Background

Child protection issues with unborn babies can arise during pregnancy. In Northern Ireland, child protection responsibilities are placed on health and social care professionals such as midwives and children's services social workers under the *Children (Northern Ireland) Order 1995* (Articles 18, 46) and associated statutory Regulations and Guidance. Where there are concerns, they assess the possibility of significant harm from the point where the baby *in utero* is viable so as to initiate, from birth if necessary, appropriate protective interventions and support to families....” (Lazenbatt & Greer, 2009, Mc Elhinney et al., 2020). Despite approaches to better understanding the epidemiology of child abuse (Jud et al., 2016), professionals seem to rely on their personal experience and multi-professional collaboration as primary methods to inform their judgements, whilst also managing the fear of judicial review if there are challenges to decisions (Duffy et al., 2006; Trocme et al., 2016), Taylor & Campbell, 2011). These types of decisions involve risks which must be assessed and managed appropriately (Fengler & Taylor, 2019; Kemshall et al., 2013). Adopting a balanced approach to decision making involves balancing the risk of intervening or not intervening on the unborn baby, on the disruption to family life, and the risk to the credibility of professionals and organisations if harm results (Calder, 2016; Lishman, 2007; Taylor, 2012; Taylor, 2017a&b).

In Northern Ireland, if it is suspected that a child, including an unborn baby, is at risk of harm ([12,17]), the public health and social care organisations have a statutory responsibility under the *Children (Northern Ireland) Order 1995* (Articles 18 and 46) (DHSSPS, 1995) to provide appropriate assessment and services to families. To determine if an unborn baby is in need, midwives and child protection social workers undertake a needs assessment using the Understanding the Needs of Children in Northern Ireland (UNOCINI) framework (DHSSPS, 2011).

In cases whereby the pregnant women is under the age of 16 years, health and social care professionals are duty bound to make a referral to child protection services, as this may indicate child abuse. In consultations with supervisors, midwives and hospital social workers, who are concerned about the safety of an unborn baby, initiate a referral to child protection services (NMC, 2019). Using their professional judgement, social workers who receive these referrals undertake an assessment and weigh up

the risks of harm to the unborn baby. Recommendations about protective interventions within mandated child protection decision processes (Taylor, 2017a) are made. Child protection social workers and midwives are employed in the same health and social care organisation, but midwives are hospital based whereas social workers are community based (SEHSCT, 2017).

The Understanding the Needs of Children in Northern Ireland (UNOCINI) assessment tool is used by social workers to collate key information in assessing risks of child abuse and neglect so as to support decision making (Calder, 2016). An additional assessment tool, the *Safeguarding Children: Trigger List for Maternity Units (Ante and Post Natal)* (South Eastern Health and Social Care Trust [SEHSCT], 2016), is also used by midwives in some localities to decide whether a referral to children's services is needed. Hospital-based social workers often provide advice and assistance to midwives who have concerns regarding the protection of unborn babies. Initial referrals of concern about unborn babies are received, and further needs assessed, by child protection social workers in the Gateway/Single Point of Entry (SPOE) teams to determine appropriate action to be taken (SEHSCT, 2017). Risk assessment involves collecting information but also determining the reliability of this information (Carson & Bain, 2008). Professionals are, of course, required to take account of legislation, regulations, guidance and relevant policies and procedures at each stage of their decision making, despite the uncertainty and ambiguity present in many cases (Killick & Taylor, 2020).

A good working relationship between professionals and vulnerable pregnant women facilitates effective assessment of risk factors in child protection cases involving unborn babies (Ayerle et al., 2012; Critchley 2020). Effective multi-professional and multi-agency working is also a key component of good assessment in child protection cases (Jindal-Snape & Hannah, 2014) so as to utilise the experience and skills of various professionals (MacQueen et al., 2012). The outcomes of initial referrals depend on competent assessments undertaken by professionals. This may include referral for specialist assessment, provision of support to families, or a determination that no further action is needed (DHSSPS, 2013). Criticism of professional decision making in cases of unborn baby referrals include issues such as: poor communication; training deficits; lack of trust amongst professionals; insufficient experience in addressing the psychosocial issues; and resource limitations (Littlechild & Smith, 2013).

Some risk factors resulting in child protection referrals of an unborn baby have been identified (Mc Elhinney et al., 2019) and include domestic violence (Ayerle et al., 2012), drug use (Ondersma et al., 2001), alcohol use (Phillips et al., 2007), mental wellbeing (Robertson Blackmore et al., 2006), age of the pregnant woman (Ayerle et al., 2012), feelings about the pregnancy (Midmer et al., 2004), antenatal care (Willinck & Schubert, 2000) and pregnant woman's childhood experiences (Broadhurst & Mason, 2013). Professionals are required to weigh the importance of these risk factors and rely on their professional judgement to inform their decision making and the appropriate method of action to be taken (Calder, 2016). Overall, however, there limited knowledge on how midwives and social workers assess and prioritise risk factors and the impact on their decision making.

Method

Design

The study used a factorial survey design (Rossi & Knock, 1982) embodying strengths of both survey and experimental designs (Auspurg & Hinz, 2015; Taylor, 2006; Taylor & Zeller, 2007). Vignettes with a standard structure but random allocation of independent variables were administered through a survey, the vignette being the unit of analysis (Lauder et al., 2002; Hill et al., 2018; Killick & Taylor, 2012; Mullineux et al., 2020).

Independent Variables

The vignettes were constructed to be representative of the types of child protection cases involving unborn babies that are encountered by professionals in practice. To ensure construct validity and reliability of the survey tool, the independent variables were selected by (1) undertaking a systematic narrative review of the literature; (2) focus groups with HSC professionals (Mc Elhinney et al., 2020); and (3) discussion with management in maternity and children's social work services. A USA professor with extensive experience of factorial surveys in health and social care was consulted on the structure of the independent variables and appropriate levels of independent variables displayed within the vignettes (Figure 1). Prior to data collection, a pilot was undertaken with a sample of midwives and children's services social workers (n=6) and management (n=2) from maternity services and children's services. Programming issues were identified including the identification of incorrectly programmed IV's, possible unrealistic vignette scenario (e.g. under 16 years old and takes prescribed methadone) and some rewording of questions to language acceptable to both professions. Appropriate changes were made to the survey prior to dissemination. Following developmental work with software writers (Helfer et al., 2018) wellbeing of the pregnant woman. Qualtrics software was used for efficient administration and programmed to ensure that there was no bias in the allocation of levels of the independent variables within the vignettes generated (Helfer et al., 2018). Three independent variables contained two levels, and six independent variables contained three levels resulting in $2^3 * 3^6 = 5832$ different vignettes. The vignettes were randomly generated, removing the bias inherent in a set ordering (Wallander, 2009).

Dependent Variables

Two dependent variables were measured on a ten point Likert Scale and measured the following: "To what extent do you perceive there to be a risk of harm to the unborn child?" (0= No harm to 9 = Significant harm) and "To what extent do you think a child safeguarding referral should be made?" (0= No to 9= Yes).

Sample and Recruitment

All midwives (n=250) and children's services social workers (n=88) employed in one Health and Social Care Trust in Northern Ireland were invited to participate. Midwives were employed in one of three hospital sites; children's services social workers were employed in the Single Point of Entry, Gateway, Family Intervention, 16+ or hospital teams. All professionals had experiences of supporting pregnant women where there were child protection concerns regarding an unborn baby.

Managers from both maternity and children services social work within the Trust assisted with recruitment. Managers used an inclusion criterion to identify suitable participants and emailed a letter of invitation letter detailing the nature of the study,

information on the survey and anticipates date. Subsequently, managers emailed participants through the staff intranet with a link to complete the survey.

Administration

The survey included a preliminary section on demographics, such as: gender, age, employment status, years in the profession, educational qualifications, team base, training, and experience of safeguarding cases. Section two, case vignettes, included a preamble on the cases scenarios and the ten case vignettes presented in bullet point format and on ten separate pages to avoid participant overload. Participants were also asked to reflect upon a past safeguarding case and indicate which of the listed risk factors influenced their decision making by choosing a yes or no option.

In January 2015, ethical approval was granted by the Ulster University School of Nursing Research Governance Filter Committee and the Research Governance Committee of the Health and Social Care Trust where the data was collected. An email was distributed by managers in maternity and children social work services to 338 potential participants identified as fitting the study criteria. This email contained the aims and objectives of the research, information of the focus groups previously undertaken, ethical approval, eligibility criteria, information on the purpose and completion of the survey, confidentiality and the weblink to access the survey. Through accessing the weblink, participants were provided with information on the aim, structure and length of time for completion of the survey and information on confidentiality and data storage policies. Consent was implied upon completion of the survey.

Method of analysis

Multiple regression was used to identify the independent variables (risk factors) that significantly influenced the two dependent variables. The significant independent variables were further explored using one-way between-groups analyses of variance (ANOVA) to determine their influence on the two dependent variables. Multiple regression was also undertaken to determine the influence of profession type and years in profession on all dependent variables. Post-hoc tests were performed on the significant variables in the multiple regression models using the Games Howell test (Field, 2013). For dichotomous significant variables, independent sample t-tests were undertaken as an alternative to one-way ANOVA (Brace et al., 2009).

Results

In a factorial survey, the unit of analysis is the vignette (Taylor & Zeller, 2007; Wallander, 2009). In total, 1,096 vignettes were completed for analysis by 118 participants. Participants consisted of 13 male and 105 female; 67 were midwives and 51 were children service's social workers. The response rate of 118 out of 338 (35%) is typical of surveys of busy professionals. The majority of participants (40) were aged between 50-60 years, with 60 educated up to degree level and one with a PhD. Most participants were employed full time (76) and the remainder (42) were employed part time. Level of experience within their respective professions ranged from less than 1 year to 40 years with the majority of participants (38) working 1-10 years. Regarding training, 87 participants had completed Safeguarding Level 1; 76 Safeguarding Level 2; and two held an Advanced Award in Social Work.

Perceived risk of harm to an unborn baby (first analysis)

The coefficient of determination (R^2) indicated the variance in the dependent variable (perceived risk of harm to an unborn baby) explained by the model. The model was significant in predicating the perceived risk of harm to an unborn baby [$R^2 = .446$; $\text{Radj} = .438$; $F(15, 1080) = 57.962$; $p < 0.001$] explaining 43.8% of the variance.

Regression coefficients (Table 1) indicated that seven of the nine independent variables were significant ($p < 0.001$). Significant variables included; *drug use*, *alcohol use*, *age*, *antenatal care attendance*, *mental wellbeing*, *domestic violence* and *childhood experiences*. However, *gestation* and *feelings about pregnancy* were not significant in measuring the perceived risk of harm to an unborn baby. The most influential variable was *drug use*, which had three categorical variables with *has never taken illegal drugs* used as the reference category. The move from *has never taken illegal drugs* to *takes illegal drugs* ($B = .1.638$, $\beta = .308$, $t = 11.711$, $p < .001$) had an increased score on risk. Similarly, an increased score on risk was also found from *has never taken illegal drugs* to *takes prescribed methadone* ($B = .1.628$, $\beta = .301$, $t = 10.871$, $p < .001$). Further measures were undertaken to determine the influence of *drug use* and concluded that the risk to the unborn baby significantly increased when considering prescribed and illegal drugs.

The second most influential variable was *alcohol use* which consisted of three categorical variables with *drinks 5-6 units per week* used as the reference category. The move from *drinks 5-6 units per week* to *does not drink alcohol* had a decreased score on risk ($B = -1.529$, $\beta = -.308$, $t = -11.120$, $p < .001$). A decreased score on risk was also found from *drinks 5-6 units per week* to *drinks 1-2 units per week* ($B = -.684$, $\beta = -.127$, $t = -4.810$, $p < .001$). Further measures were undertaken to determine the influence of *alcohol use* and concluded that the increasing number of units of alcohol consumed also increased the risk to the unborn baby.

The age of the pregnant woman was the third most influential variable, consisting of three categorical variables with *17-20 years old* used as the reference category with a significant impact found in the category *under 16 years old* only. The move from *17-20 years old* to *under 16 years old* had an increased score on risk ($B = .900$, $\beta = .168$, $t = 5.862$, $p < .001$). Further results showed that pregnant women aged *17-29 years old* and *under 16 years old* did not differ greatly with regards to the perceived risk to an unborn baby.

The fourth most influential variable was *antenatal care attendance* which consisted of three categorical variables with *has missed one antenatal appointment* used as the reference category with a significant impact found in *has missed two antenatal appointments* only. The move from *has missed one antenatal appointment* to *has missed two antenatal appointments* had an increased score on risk ($B = .701$, $\beta = .141$, $t = 5.159$, $p < .001$).

Mental wellbeing of the pregnant woman was the fifth most influential variable consisting of three categorical variables with *has good mental health* used as the reference category. The move from *has good mental health* to *is currently receiving treatment for depression* had an increased score on risk ($B = .651$, $\beta = .131$, $t = 4.787$, $p < .001$). Previous treatment for depression was not seen as a risk within a current pregnancy in terms of perception of risk to an unborn baby.

Domestic violence was the sixth most influential variable, consisting of two categories with *feels afraid at home* acting as the reference category. The move from *feels afraid at home* to *has a supportive partner* had a decreased score on risk ($B=-.1.085$, $\beta=-.227$, $t=-9.344$, $p= <. 001$). An increased risk to an unborn baby was reported in pregnant women who reported feeling afraid at home compared with those who had a supportive partner.

The seventh most influential variable was *childhood experiences*, consisting of two categories with *her father was in prison most of her life* was used as the reference category. The move from *her father was in prison most of her life* to *she had a secure childhood* had a decreased score on risk ($B=-.554$, $\beta=-.114$, $t=-4.762$, $p= <. 001$).

The need for a child protection referral (second analysis)

A regression analysis was also undertaken on the second dependent variable (the need for a child protection referral). Results of the regression analysis indicated that the model was significant in predicating whether a referral should be made or not [$R^2 = .445$; $Radj = .438$; $F(15, 1079) = 57.774$; $p < 0.001$] explaining 43.8% of the variance.

Regression coefficients (Table 2) showed that seven of the nine independent variables were significant in measuring the variable (the need for a child protection referral). Those variables included; *drug use*, *alcohol use*, *age*, *mental wellbeing*, *antenatal care attendance*, *domestic violence* and *childhood experiences*. However, the remaining variables *gestation* and *feelings about the pregnancy* were not significant in measuring the need for a child protection referral.

The most influence variable in measuring the need for a child protection referral was *drug use*. *Drug use* consisted of three categorical variables with *has never taken illegal drugs*, used as the reference category. The move from *has never taken illegal drugs* to *takes illegal drugs* ($B=1.675$, $\beta=.278$, $t=10.559$, $p < 0.001$) had an increased score on risk. Furthermore, the move from *has never taken illegal drugs* to *takes prescribed methadone* ($B=2.201$, $\beta=.359$, $t=12.950$, $p < .001$) also had an increased score on risk. Further results revealed that *takes illegal drugs* and *takes prescribed methadone* did not differ significantly in regards to the need for a child protection referral.

The second most influential variable was *alcohol use* which consisted of three categorical variables with *does not drink alcohol* used as the reference category. The move from *does not drink alcohol* to *drinks 5-6 units per week* had an increased score on risk ($B= 1.509$, $\beta= .268$, $t=9.680$, $p= <.001$). An increased score on risk was also found from *does not drink alcohol* to *drinks 1- 2 units per week* ($B=.860$, $\beta=.141$, $t=5.298$, $p= <.001$). Further results stated that the variable *does not drink alcohol* had little impact on the need for a referral but an increase in alcohol units consumed increased the need for a referral.

The third most influential variable was *age* of the pregnant woman and consisted of three categorical variables with *17-20 years old* used as the reference category. A significant impact was found in the category *under 16 years old* only. The move from *17-20 years old* to *under 16 years old* had an increased score on risk ($B=1.356$, $\beta=.224$, $t=7.782$, $p= <. 001$). Further results indicated that there was no significant

difference between *17-20 years old* and *under 16 years old* with regards to the need for a referral.

Mental wellbeing of the pregnant woman was the fourth most influential variable. It consisted of three categorical variables and *has good mental health* was used as the reference category. The move from *has good mental health* to *is currently receiving treatment for depression* had an increased score on risk ($B=.883$, $\beta=.156$, $t=5.727$, $p=<0.001$). Further results revealed that there were no significant differences between the categorical variables with regard to the need for a referral.

The fifth most influential variable was *antenatal care attendance* which consisted of three categorical variables, with *has missed one antenatal appointment* used as the reference category. A significant impact was found in *has missed two antenatal appointments* only. The move from *has missed one antenatal appointment* to *has missed two antenatal appointments* had an increased score on risk ($B=.679$, $\beta=.121$, $t=4.408$, $p=<0.001$). Further results showed that *has missed one antenatal appointment* and *has missed two antenatal appointments* showed a significant difference with regards to the need for a referral. However, there was no difference between *has attended all antenatal appointments* and *has missed two antenatal appointments*.

Domestic violence was the sixth most influential variable, consisting of two categorical variables with *feels afraid at home* used as the reference category. The shift from *feels afraid at home* to *has a supportive partner* had a decreased score on risk ($B=-.1231$, $\beta=-.227$, $t=-9.349$, $p=<0.001$).

The seventh most influential variable was *adverse childhood experiences of the pregnant woman* and consisted of two categorical variables with *her father was in prison most of her life* acting as the reference category. The move from *her father was in prison most of her life* to *she had a secure childhood* had a decreased score on risk ($B=-.698$, $\beta=-.127$, $t=-5.288$, $p=<0.001$).

Reflection on a previous child protection case

The risk factors reported as leading to a referral within the past 12 months in order of influence included; mental wellbeing of the pregnant woman, pregnant women's childhood experiences, domestic violence, drug use, alcohol use, age of the pregnant woman, feelings about the pregnancy, lack of engagement with antenatal services and stage of pregnancy.

Discussion

This study identifies key child abuse risks in pregnancy from the perspective of professionals, and indicates their perception of the relative seriousness of these. The weighting of risk factors regarding the protection of an unborn baby were quantified through this factorial survey, building on the preparatory work. The results produced an ordering of the major risk factors impacting the decision making of midwives and children's services social workers in Northern Ireland regarding child protection issues with pregnant women and unborn babies. There were no significant differences between the two professionals groups in the weighting of risk factors. Seven of the independent variables were significant in judging the perceived risk of harm to an

unborn baby and a child protection referral was appropriate. We comment on each of these below before considering the broader issues of need for a referral and confidence in the protective arrangements.

This factorial survey design lent itself to identifying the rank ordering of risk factors, but provides no professional narrative about the meaning of these factors for practice which would require a different study design. The study highlights the range of factors regarded by professionals as relevant to child protection risks in pregnancy. *Drug use, alcohol use, age, antenatal care, mental wellbeing, domestic violence and adverse childhood experiences* (in this rank ordering) were regarded as significant by experienced midwives and social workers in terms of potential harm to an unborn baby and requiring referral to children's social work services. Despite being reported in a previous study (Mc Elhinney et al., 2019) professionals did not perceive *gestation period* and *feelings about the pregnancy* to be a significant risk factor. These significant factors will be considered in turn.

Professionals may have thought that drug use presents not only risk in terms of parenting, but also risk to the unborn baby due to substance ingestion and negative outcomes such as premature birth (Wellman, 2005), neurobehavioral and neurophysiological disorders and stillbirth (Nies & McEwen, 2015; Ashford & LeCroy, 2013). In the study site, midwives routinely screen for drug use at antenatal booking appointments, and would initiate a referral to children's social work services if appropriate (DHSSPS, 2005). Pregnant women who take drugs may be more likely to be unable to protect themselves under the influence of these substances, adding to the risks for her and her unborn baby (Rassool, 2009).

Alcohol use in pregnancy was regarded as a high risk factor in this study. As the units of alcohol consumed increased, so too the perceived risk of harm to the unborn baby. In 2016, new guidelines were issued in Northern Ireland advising women who were planning a pregnancy or were pregnant to abstain from alcohol (DOH, 2016). It is well reported that consuming alcohol in pregnancy may cause Fetal Alcohol Syndrome (FAS) or Fetal Alcohol Spectrum Disorder (FASD) (Peadon et al., 2010) but at present there is not a consensus on frequency, timing or amount of alcohol consumed in pregnancy that causes this preventable condition (Catterick & Curran, 2014).

The age of the pregnant woman, particularly those under the age of 16 years old, was perceived to be a significant risk factor. This situation poses questions about the circumstances around conception, safety of the pregnant woman, suitability of the environment in which she lives and subsequently the baby will live (Powell, 2007). Missing antenatal appointments impacted professionals perception of risk to the unborn baby and increased the need for a referral to be made. Missing antenatal appointments may potentially raise questions regarding the pregnant woman's background, social circumstances and child protection issues with her unborn baby (Narayan, 2015). Late antenatal care attendance may impact on assessment timeframes, but also raises concerns around concealed pregnancies and unwillingness to engage with social services when deemed necessary (Medforth et al., 2017).

In Northern Ireland, it is estimated that between 10-20% of women may develop a mental illness during the perinatal period (PHA, 2017). Mental illness in pregnant

women was regarded as important, adding weight to the need for more effective detection and treatment of mental illness in pregnant women to ensure that their babies are not placed at risk and they are supported with their illness (Mc Elhinney et al., 2020). Particular emphasis was placed on the risk to unborn babies from women who were receiving treatment for depression.

Previous research indicates that there is an increased risk of domestic violence in pregnancy (Leneghan et al., 2012). Domestic violence may have a harmful impact on a pregnant woman with the potential to cause irreparable damage to her unborn baby (Mc Elhinney et al., 2020). Domestic violence was also of concern to professionals in this study. However it was rated relatively low on the list, perhaps due to professionals' perception of the significance of previous risk factors and perhaps because of the varying degrees and presentation of domestic violence (Strauss, 2009).

Adverse childhood experiences such as the lack of a positive parenting role model may impact upon parenting practices risking the repeat of the same negative experiences for the unborn baby (Klebanov & Travis, 2015). In this study, the childhood experiences of a pregnant woman presented a higher risk to unborn babies, compared with those who had a secure upbringing. However, these experiences may prompt a pregnant woman to make positive changes to provide a stable and safe environment for raising a baby thus breaking the cycle (Mc Elhinney et al., 2020).

Similar to the findings from professionals' perceived risk of harm, the risk factors drug use, alcohol use, age, mental wellbeing, antenatal care, domestic violence and childhood experiences were perceived by professionals to warrant a child protection referral to be made to childrens services. Pregnant women currently receiving treatment for depression were of concern to midwives and social workers. Past treatment for depression was not deemed to be a significant concern in a current pregnancy and was not deemed as grounds for a referral to social services. In regards to the perceived need for a referral, it is noteworthy that mental wellbeing was perceived to be of greater risk than antenatal care attendance in comparison to professionals' perceived risk of harm. It is possible that midwives believed that initiating a referral to child protection social work services may result in a better chance of the pregnant woman receiving support with her mental illness and in turn, better outcomes for her and her unborn baby.

This study provides a useful development of knowledge rather than of service configurations. The rank ordering provides more robust data than previously available on relative weightings of risk factors, which will be valuable for informing training of midwives and child protection social workers. Service managers and those involved in professional education could usefully reflect on current practice and teaching in the light of the rank ordering of risk factors from this study. As the study of decision making, assessment and risk in health and social care progresses (Przeperski & Taylor, 2020; Taylor et al., 2017; Taylor & Whittaker, 2019; Whittaker & Taylor, 2018) more sophisticated research methods are required to understand better the relative weighting of factors, their meaning for practice, and the type of impact that each has on child protection risks in pregnancy.

Conclusion

This factorial survey provided an ordering of the major risk factors experienced by midwifery and child protection social work professionals in their practice with pregnant women in Northern Ireland. Seven of the nine identified risk factors were found to be significant in determining the perceived risk of harm to an unborn baby and the need for a child protection referral to be made. In order of significance the risk factors were; drug use, alcohol use, age, antenatal care, mental wellbeing, domestic violence and childhood experiences. Gestation period and feelings about the pregnancy were not significant. No significant differences were found between midwives and children's services social workers regarding appraising these risks in relation to decision making about child protection referrals.

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Figures and Tables

<ul style="list-style-type: none"> The pregnant woman is [under 16 years old / 17-20 years old / in her late 20's] and is [16 weeks / 26 weeks] pregnant She is [happy about her pregnancy / unhappy about her pregnancy / ambivalent about her pregnancy] She tells you that she [has a supportive partner / feels afraid at home] She tells you that [she had a secure childhood / her father was in prison most of her childhood] She [has attended all antenatal appointments / has missed one antenatal appointment / has missed two antenatal appointments] to date She [does not drink alcohol / drinks 1-2 units per week / drinks 5-6 units per week] and [has never taken illegal drugs / takes prescribed methadone / takes illegal drugs] She [has good mental health / has previously been treated for depression / is currently receiving treatment for depression]
<p>To what extent do you perceive there to be a risk of harm to the unborn child?</p> <p>No Harm 0 1 2 3 4 5 6 7 8 9 Significant Harm</p>
<p>To what extent do you think a child safeguarding referral should be made?</p> <p>No 0 1 2 3 4 5 6 7 8 9 Yes</p>

Figure 1: Sample Vignette Framework Used in Factorial Survey

Table 1 Regression Coefficients of Model 1: Perceived Risk of Harm to an Unborn Baby

IV	Variable	B	Std. Error	β	t	Sig.
Gestation	16 weeks (RC)					

	26 Weeks	.106	.119	.022	.890	.374
Childhood Experiences	her father was in prison most of her life (RC)					
	she had a secure childhood	-.554	.116	-.114	-4.762	.000*
Domestic Violence	feels afraid at home (RC)					
	has a supportive partner	-1.085	.116	-.227	-9.344	.000*
Age	under 16 yrs. old	.900	.154	.168	5.862	.000*
	17-20 yrs. old (RC)					
Drug Use	In her late 20's	-.331	.137	-.066	-2.415	.016
	has never taken illegal drugs (RC)					
	takes illegal drugs	1.638	.140	.308	11.711	.000*
Alcohol Use	takes prescribed methadone	1.628	.150	.301	10.871	.000*
	does not drink alcohol	-1.529	.137	-.308	-11.120	.000*
	drinks 1-2 units per week	-.684	.142	-.127	-4.810	.000*
Mental Wellbeing	drinks 5-6 units per week (RC)					
	has good mental health (RC)					
	has previously been treated for depression	.323	.143	.060	2.267	.024
Feelings about Pregnancy	is currently receiving treatment for depression	.651	.136	.131	4.787	.000*
	ambivalent about her pregnancy (RC)					
	happy about her pregnancy	-.188	.138	-.035	-1.365	.172
Antenatal Care	unhappy about her pregnancy	.209	.142	.038	1.469	.142
	has attended all antenatal appointments					
	has missed one antenatal appointment (RC)	.103	.143	.019	.722	.470
	has missed two antenatal appointments	.701	.136	.141	5.159	.000*

*Independent Variables that were significant in measuring Dependent Variable

Table 2 Regression Coefficients of Model 2: The Need for a Child Protection Referral

IV	Variable	B	Std. Error	β	t	Sig.
Gestation	16 weeks (RC)					
	26 Weeks	.114	.135	.021	.843	.400
Childhood Experiences	her father was in prison most of her life (RC)					
	she had a secure childhood	-.698	.132	-.127	-5.288	.000*
Domestic Violence	feels afraid at home (RC)					
	has a supportive partner	-1.231	.132	-.227	-9.349	.000*
Age	under 16 yrs. old	1.356	.174	.224	7.782	.000*
	17-20 yrs. old (RC)					
Drug Use	In her late 20's	-.366	.155	-.065	-2.357	.019
	has never taken illegal drugs (RC)					
	takes illegal drugs	1.675	.159	.278	10.559	.000*
Alcohol Use	takes prescribed methadone	2.201	.170	.359	12.950	.000*
	does not drink alcohol (RC)					
	drinks 1-2 units per week	.860	.162	.141	5.298	.000*
Mental Wellbeing	drinks 5-6 units per week	1.509	.156	.268	9.680	.000*
	has good mental health (RC)					
	has previously been treated for depression	.347	.162	.057	2.147	.032
Feelings about Pregnancy	is currently receiving treatment for depression	.883	.154	.156	5.727	.000*
	ambivalent about her pregnancy (RC)					
	happy about her pregnancy	-.091	.156	-.015	-.584	.559
Antenatal Care	unhappy about her pregnancy	.175	.161	.028	1.084	.279
	has attended all antenatal appointments	.051	.162	.008	.316	.752
	has missed one antenatal appointment (RC)					
	has missed two antenatal appointments	.679	.154	.121	4.408	.000*

*Independent Variables that were significant in measuring Dependent Variable