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Research Article

What Are the Sociodemographic and Clinical Characteristics and Needs of Mothers Who Access Acute Postpartum Psychiatric Care and Have Children's Social Care Involvement?

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Mothers with severe postpartum psychiatric diagnoses are more likely to have children's social care involvement with their infants, but little is known about the needs or experiences of this group of women. With input from a lived experience advisory group, we carried out secondary analysis of data collected from 278 mother-infant dyads where the mother accessed acute psychiatric care in England or Wales postnatally. We explored the characteristics, needs, and service use experiences of mother-infant dyads with ($n = 99$) and without ($n = 179$) children's social care involvement. We found that mothers with social care involvement were often experiencing wider adversity and inequity across multiple areas of their lives. These mothers were also less satisfied with their mental health care and had more unmet needs after discharge from acute services. We built multivariable logistic regression models to examine factors associated with children's social care involvement during the acute admission and one year later. We found that having social care involvement during an acute postpartum admission was associated with being deprived, reporting a maternal history of childhood trauma, experiencing domestic abuse, having a diagnosis of personality disorder or schizophrenia, and having a history of previous psychiatric admissions. At one-year follow-up, factors associated with children's social care involvement included deprivation, experiencing childhood trauma, having been single at the time of the postpartum admission, and having been readmitted to acute psychiatric services following the postpartum admission. Our findings suggest that mothers with children's social services involvement in the context of an acute postpartum psychiatric diagnosis may have high levels of support needs, but services may struggle to meet their needs fully. We argue that an increased focus on supporting mothers with histories of trauma, adversity, and deprivation, along with greater collaboration between mental health, children's social care, and third sector services may help improve experiences and outcomes.

1. Introduction

The first year of life is a critical time, when infants are dependent on their caregivers for their wellbeing and when the foundations of healthy development are laid. However, in the UK, children's social care interventions among infants considered to be at risk of harm have been increasing. While the reasons for this are no doubt complex, infants under one year are most likely to come before the family courts in care proceedings, and there have been sharp rises in the rates of newborns involved in proceedings [1].

Women are at an increased risk of being admitted to psychiatric hospitals in the postpartum period [2, 3] and mothers with postpartum psychiatric diagnoses are more likely to have children's social care involvement [4, 5]. A UK national audit of admissions to specialist psychiatric mother and baby units (MBU) found that half of mothers with a schizophrenia diagnosis were under children's social care supervision at the time of discharge, and a quarter were separated from their infants [6]. Social care interventions can have a profound, enduring impact on both mother and infant. Mothers have higher levels of participation in child protection procedures than fathers, often bearing the greatest responsibility for an infant's care and having little choice but to participate [7]. The UK confidential enquiry into maternal deaths emphasises the importance of therapeutic support for women undergoing social care proceedings during or after pregnancy, highlighting their vulnerability to mental distress and suicide [8].

However, only a few studies have explored the characteristics and needs of mothers with postpartum mental health diagnoses and children's social care involvement. These studies, which have mostly been conducted with women admitted to MBUs, suggest that mothers are more likely to have child protection involvement if they have diagnoses of schizophrenia or personality disorder, are socioeconomically deprived, young, single, and lacking supportive relationships, or have spent time in care themselves [9–12].

Mothers with postpartum psychiatric diagnoses and children's social care involvement may, therefore, be parenting amidst wider social and economic adversity. This merits further investigation, especially as little research exists on their experiences of mental health care or whether services meet their needs. Developing a fuller understanding of the support needs of this population is important because, while the perinatal period can be viewed as a time of risk for mothers and infants, it has also been conceptualised as a "window of opportunity," when families express a desire for help [13, 14] and when support can strengthen mother-infant dyads [15].

This study aimed to explore the characteristics and needs of mothers who access acute psychiatric services postnatally and have child protection involvement. We not only included mothers admitted to specialist MBUs, but also mothers admitted to general psychiatric wards and those accessing multidisciplinary Crisis Resolution Teams (CRTs), which offer short-term intensive home treatment for acute mental health crises. We explored factors associated with social care involvement during acute postpartum psychiatric care and one year later, along with mothers' experiences of mental health services and whether these met their needs.

2. Materials and Methods

2.1. Study Setting/Participants. Participants had been recruited from the "Effectiveness of Services for mothers with Mental Illness" (ESMI) study (see [16–18] for full details of recruitment/study design). NHS ethics approval was obtained (reference: 14/LO/0765). Postpartum women ($n = 279$) who had been admitted to an MBU, general acute ward, or CRT (or any combination) in the first year after childbirth (from 2013–2017) were recruited from 42 mental health care provider organisations across England and Wales. Women were excluded if clinical staff working with them judged they lacked capacity to consent, if they were using an acute service "prophylactically" (e.g., for a statutory parenting assessment), or if their baby had been permanently removed from their care before their admission.

Women were interviewed one month after discharge from acute psychiatric care, with interpreters used where needed. They provided written informed consent to participate in researcher-administered questionnaires, and for researchers to review their clinical notes and obtain local authority data. They also gave consent for follow-up one-year postdischarge via a short telephone interview and review of their clinical case notes and local authority data (to determine whether they had had children's social care involvement and/or whether they had been readmitted to acute psychiatric services in the year following their postpartum admission).

2.2. Lived Experience Involvement. The original ESMI programme included a lived experience advisory group (LEAG). For the current analysis, we formed a separate LEAG of three mothers with lived experience relevant to our research topic, designed specifically to guide our analyses. This LEAG met four times providing input into the analysis plans, interpretation of findings, and lived experience reflections (Figure1).

2.3. Measures

2.3.1. Primary and Secondary Outcome. The primary outcome was whether women had children's social care involvement with their infants during their acute psychiatric admission (yes/no), based on local authority data, case notes, and researcher-administered interviews, covering the time of the acute admission up to their interview at one-month postdischarge. The secondary outcome was whether women had children's social care involvement at one-year follow-up (based on local authority data/case notes at the one-year timepoint).

2.3.2. Sociodemographics. Key sociodemographic data in our analyses included the following: maternal age (at initial interview), maternal ethnicity (categorised as

Further reflections by lived experience advisor Latoya Brobbey

When is intervention by social services a preventative measure and when is it paranoia? Judging a mother based on her ticking boxes in similarity to previous case studies risks opening the door to discrimination, assumption and judgement. Past research, as mentioned in our article, found that psychiatric professionals felt that women diagnosed with schizophrenia were more likely to hurt their infant children, even when there was no evidence to suggest this was the case. This suggests that the stigma associated with mental health is still there and can influence decisions; that's quite dangerous if it is still happening.

Also, stress is a major trigger in mental health, yet social services involvement produces nothing but stress for mothers already dealing with mental health issues. Could it be that social services involvement may actually diminish a mother's parenting capacity? Suggestion: maybe social services should partake in the actual mental health care of the mother and undergo mental health training to better understand the mother.

Figure 1: Further lived experience reflections.

White; Black African/Caribbean/Black British; Asian/Asian British; Mixed; and Other), education (categorised as whether the mother attended "higher education," i.e., had a university degree), partner status (whether the mother had a partner at the time of her initial interview), annual household income (under £15k; yes/no), and primiparity (first baby; yes/no).

2.3.3. Developmental and Interpersonal Trauma. Women completed the Childhood Trauma Questionnaire (CTQ) [19], a validated 28-item self-report scale measuring sexual, emotional and physical abuse, and neglect in childhood. CTQ subscale scores range from 5 to 25 (with recommended cutoffs for moderate-severe trauma), with total scores ranging from 25 to 125.

The Composite Abuse Scale (CAS) [20], a validated 30-item measure of partner abuse, was also administered. Scores of 3+ indicate partner abuse. This scale was administered at one-month postdischarge but was modified to collect data covering the following: (1) the 12 month period prior to admission and (2) the point of discharge to one-month postdischarge. A score of 3+ at either time-point was considered a report of partner abuse. As data at one-year follow-up were collected from reviews of case notes and brief telephone interviews, the CAS was not readministered at follow-up.

2.3.4. Clinical Factors. We examined clinical factors (as binary yes/no variables), including whether the mother: had other psychiatric admissions in the two years before her postpartum admission; used substances (this was a composite variable comprised of whether the mother had (1) a substance use disorder recorded on the International Classification of Diseases (ICD-10), or (2) substance use recorded on the Health of the Nations Outcome Scale routinely collected by services in England and Wales, or (3) reported substance use on the Smoking Alcohol and Drug use (SAD) form, or (4) an unmet need for substance use recorded on the CAN-M(S) outcome measure (see "Unmet Needs postdischarge" for a description of this measure)); had a primary/secondary diagnosis (on the ICD-10) of schizophrenia, bipolar disorder, depression, or personality disorder; had a learning disability or difficulty reading her own language; was detained under the Mental Health Act during her admission; or was readmitted in the year following her postpartum admission.

2.3.5. Unmet Needs Postdischarge. Women reported their unmet health and social care needs one-month post-discharge using the researcher-administered Camberwell Assessment of Need for Mothers Short Version (CAN-M(S)), a 26-item validated questionnaire [21]. Items are scored on a scale from 0–2 and summed to generate a total number of "met"/"unmet" needs.

2.3.6. Satisfaction with Services. Women completed the Client Satisfaction Questionnaire (CSQ), a self-report questionnaire of experiences of health services. Eight items are rated on a four-point scale (e.g., "how would you rate the quality of service you received?"). Higher scores indicate greater satisfaction (total score = 32). Following our approach in the wider ESMI study, where women accessed >1 acute psychiatric service, we included their responses for the "highest" service they accessed (MBU > acute ward > CRT).

2.3.7. Data Analysis. Data were analysed using STATA version 17. Women's characteristics were described overall and by social care involvement status during the acute admission, and at one-year follow-up. We also described the characteristics of mothers ($n = 15$) who were not in custody of their infants at follow-up. Continuous measures were summarised using means/standard deviations or medians/interquartile ranges for skewed variables. Categorical measures were summarised using tallies/percentages.

Univariable analyses were undertaken to assess variables' associations with social care involvement at each timepoint. Between group comparisons of continuous data were made using the independent samples *t*-test or nonparametric Mann–Whitney *U* test where data were not normally distributed. Pearson's chi-square (χ^2) test was used for categorical data, or Fisher's exact test for small cell sizes (expected frequency <5). Due to the small number of women who lost custody of their infants, no statistical comparisons were made with this group.

Multivariable logistic regression was used in follow-up analyses to examine factors associated with children's social care involvement (1) during the acute admission and (2) at one-year follow-up, accounting for covariates. Taking the cohort size into consideration, to avoid small cell sizes, we limited the number of variables included by choosing key explanatory variables selected a priori, informed by previous research and our LEAG (see [22] for study protocol).

2.3.8. Missing Data. Primary outcome data on social care involvement during the acute admission were available for 278/279 women. At one-year follow-up, data on social care involvement were obtained for 218/279 women. We did not identify differences between women with/without missing social care data.

We had complete data ($n = 279$) for all sociodemographic and clinical variables included, except for household income (24/279 missing), and whether women had a learning disability or difficulty reading their own language (1/279 missing). We also had complete data on unmet needs (CAN-M(S)), while readmission data at follow-up were available for 278/279 women. In line with the wider study, for sporadic missing item-level data on the CAS subscales, CTQ subscales, and CSQ, we imputed mean scores where ≤20% of items were missing, resulting in complete data for 250, 264, and 261 women, respectively.

In our logistic regression models, we used multiple imputation with chained equations (MICE) to replace missing data on the included covariates. We assumed data were missing at random and imputed 50 datasets. In line with recommendations, our imputation model consisted of all variables that were included in our regression analyses (covariates and outcome variables), as well as auxiliary variables (income and detention under the Mental Health Act), but we did not include imputed outcome data in our final regression models [23]. We ran analyses according to Rubin's rules [24]. As a sensitivity analysis, we repeated our regression models using complete case analysis (i.e., including only participants with complete data).

3. Results

As shown in Figure 2, 99 (36%) of 278 women had social care involvement with their infants during their acute admission: 37 (13%) infants were on a child protection plan or more and 22 (8%) had a child in need plan. At one-year follow-up, 50 (23%) of the 218 women with available data had social care involvement. The majority of these 50 women ($n = 40$; 80%) also had social care involvement during their acute admission. Fifteen women were no longer in custody of their baby at one-year follow-up.

3.1. Characteristics of Women with Social Care Involvement during Their Acute Admission. Table 1 shows the characteristics of women with and without children's social care involvement during their acute admission. Women with social care involvement were less likely to have attended higher education (19.2% versus 48.6%; $\chi^2 = 23.37$, $p < 0.001$) and more likely to have an annual household income under £15k (51.2% versus 13.5%; $\chi^2 = 41.46$, $p < 0.001$). These two variables were highly intercorrelated, with 91% of women with a lower household income also not having attended higher education. Women with social care involvement were slightly younger (mean age 30 versus 32 years; $t = 2.74$, $p = 0.007$), more likely to have used substances (18.2% versus 6.7%; $\chi^2 = 8.72$, $p = 0.003$) and more likely to have experienced childhood trauma: their median score on the CTQ was 49 compared with 35 for other women ($Z = 4.53$; $p < 0.001$), while 62% versus 38% met the cutoff for moderate-severe trauma across one or more subscales. These women were also less likely to have a partner (67.7% versus 89.4%; $\chi^2 = 20.05$, $p < 0.001$), and more likely to have experienced domestic abuse in the 12 months before or one month after their postpartum admission (50.0% versus 20.5%; $\chi^2 = 22.97$, $p < 0.001$).

Women with social care involvement were more likely to have had a prior psychiatric admission in the past two years (30.3% versus 9.5%; $\chi^2 = 19.64$; $p < 0.001$), and more likely to be detained under the Mental Health Act during their postpartum admission (36.4% versus 24.0%; $\chi^2 = 4.77$, $p = 0.029$), but were no more likely to be readmitted to acute psychiatric services in the year following their postpartum admission (28.3% versus 21.4% readmitted; $\chi^2 = 1.69$, $p = 0.195$). They were more likely to have a diagnosis of schizophrenia (13.1% versus 2.2%; $\chi^2 = 13.18$; $p < 0.001$) or personality disorder (33.3% versus 8.4%; $\chi^2 = 27.79$, $p < 0.001$), and less likely to be diagnosed with bipolar disorder (17.2% versus 31.3%; $\chi^2 = 6.56$; $p = 0.010$). There was weak evidence that they were more likely to have a learning disability or difficulty reading their own language (17.2% versus 9.6%; $\chi^2 = 3.43$, $p = 0.064$). We did not find evidence that primiparity or ethnic background were related to social care involvement.

Women with social care involvement were overall less satisfied with the mental health care they received (median score of 25 versus 29 on the CSQ; $Z = 3.36$, $p < 0.001$), and more likely to have continuing unmet needs following discharge (median score of 4 versus 3 on the CAN-M(S);

Timepoint 1: Mothers with children's social care data available at time of acute admission (n=278)	36% had children's social care involvement (n=99) - child protection plan or more (n=37) - child in need plan (n=22)
	64% had no children's social care involvement (n=179)

Timepoint 2: Mothers with children's social care data available at one-year follow-up (n=218)	23% had children's social care involvement (n=50) - loss of custody (n=15) - child protection plan or more (n=11) - child in need plan (n=14) 80% *also had social care involvement at timepoint* 1 (*n*=40)
	77% had no children's social care involvement (n=168) 25% *had had social care involvement at timepoint* 1 (*n*=42)

Figure 2: Distribution of children's social care involvement.

$Z = -2.75$; $p = 0.006$). Item responses on the CAN-M(S) showed they were more likely to have unmet needs relating to: not having appropriate accommodation (32% versus 14%); difficulties in budgeting/paying bills (27% versus 11%); difficulties in buying/preparing food (14% versus 6%); and violence/abuse in a current/previous relationship (20% versus 10%).

3.2. Characteristics of Women with Children's Social Care Involvement at One-Year Follow-Up. Table 2 shows the characteristics of women who did/did not have social care involvement at the one-year follow-up. The pattern was broadly similar to the earlier timepoint. Women with social care involvement were slightly younger (mean age 30 versus 32 years; $t = 2.22$, $p = 0.028$), less likely to have a partner (56.0% versus 89.3%; $\chi^2 = 28.50$; $p < 0.001$), less likely to have attended higher education (12.0% versus 44.1%; $\chi^2 = 17.04$; $p < 0.001$), more likely to have an annual household income under £15k (57.1% versus 19.4%; $\chi^2 = 23.95$; $p < 0.001$), and more likely to have a history of childhood trauma: they had a median score of 53 versus 36 on the CTQ ($Z = 3.39$; $p = 0.001$), and 67% versus 43% met the cutoff for moderate-severe trauma on one or more subscale. These women were also more likely to have experienced domestic abuse in the 12 months before or month after their postpartum admission (45.2% versus 25.3%; $\chi^2 = 6.23$; $p = 0.013$) and were more likely to have used substances shortly before or around the time of their acute admission (24.0% versus 8.3%; $\chi^2 = 9.00$; $p = 0.003$).

As at the earlier timepoint, women with social care involvement at follow-up were more likely to have had an admission in the two years before their postpartum admission (32.0% versus 14.3%; $\chi^2 = 8.07$; $p = 0.004$) and were more likely to have been sectioned during their postpartum admission (42.0% versus 27.4%; $\chi^2 = 3.87$; $p = 0.049$). They were also more likely to have been readmitted to acute psychiatric services in the year following their postpartum admission (46.0% versus 19.6%; $\chi^2 = 14.02$; $p < 0.001$). These women were again less likely to have a diagnosis of bipolar disorder (14.0% versus 33.3%; $\chi^2 = 7.01$; $p = 0.008$), and more likely to have a personality disorder diagnosis (34.0% versus 11.9%; $\chi^2 = 13.35$; $p = 0.008$) or a learning disability/difficulty reading their own language (26.0% versus 10.1%; $\chi^2 = 8.19$; $p = 0.004$). There was weak evidence that they were more likely to have a diagnosis of schizophrenia (14.0% versus 5.4%; $\chi^2 = 4.23$; $p = 0.059$).

Similar to the earlier timepoint, women with social care involvement at follow-up were less satisfied with their mental health care during their acute admission (median score of 24 versus 29 on the CSQ; $Z = 4.51$, $p < 0.001$), and more likely to have unmet needs following discharge (median score of 5 versus 3 on the CAN-M(S); $Z = -2.61$, $p = 0.009$).

Table 2 also shows the characteristics of women who were not in custody of their infants at follow-up. These mothers had conspicuously low incomes: 84.6% had an annual household income under £15k. Two-thirds (66.7%) did not have a partner around the time of their acute admission, and a fifth (20.0%) were from a Black Caribbean, Black African or Black British background. Three-quarters (75.0%) met the cutoff for moderate-severe trauma on at least one CTQ subscale. High proportions of these women had a diagnosis of schizophrenia (40.0%) or personality disorder (40.0%), and/or had a learning disability diagnosis/difficulty reading their own language (40.0%). Three-fifths (60.0%) had been detained under the Mental Health Act during their postpartum admission and a majority (53.3%) had been readmitted to acute services in the following 12 months.

3.3. Follow-Up Analysis of Variables Associated with Children's Social Care Involvement. In logistic regression analyses exploring factors associated with social care involvement, we used higher education as a proxy measure of deprivation, given that, as outlined, income and higher education were highly intercorrelated, and data on higher education were complete; whereas some women declined to provide information on income.

Table 1: Characteristics of women with and without children's social care involvement during their acute episode.

Variable	N	Level	Social care involvement		Significance test	Total
			Yes ($n = 99$)	No ($n = 179$)		
Background factors						
Age (at the time of interview)	278	Mean (SD)	30.2 (6.4)	32.2 (5.7)	$t = 2.74$; $p = 0.007$	31.5 (6.0)
Ethnicity	278	White	72 (72.7)	139 (77.7)	$\chi^2 = 4.24$; $p = 0.384$[1]	211 (75.9)
		Black	10 (10.1)	10 (5.6)		20 (7.2)
		Asian	11 (11.1)	14 (7.8)		25 (9.0)
		Mixed	4 (4.0)	7 (3.9)		11 (4.0)
		Other	2 (2.0)	9 (5.0)		11 (4.0)
Any other children	278	Yes	51 (51.5)	74 (41.3)	$\chi^2 = 2.67$; $p = 0.102$	125 (45.0)
		No	48 (48.5)	105 (58.7)		153 (55.0)
Gross yearly household income under £15k	254	Yes	43 (51.2)	23 (13.5)	$\chi^2 = 41.46$; $p < 0.001$	66 (26.0)
		No	41 (48.8)	147 (86.5)		188 (74.0)
Higher education	278	Yes	19 (19.2)	87 (48.6)	$\chi^2 = 23.37$; $p < 0.001$	106 (38.1)
		No	80 (80.8)	92 (51.4)		172 (61.9)
Childhood trauma (CTQ score)	264	Median (IQR)	49 (33–64)	35 (27–49)	$Z = 4.53$; $p < 0.001$	38 (29–56)
Current relationships						
Partner	278	Yes	67 (67.7)	160 (89.4)	$\chi^2 = 20.05$; $p < 0.001$	227 (81.7)
		No	32 (32.3)	19 (10.6)		51 (18.4)
Intimate partner abuse (total CAS score >3)	250	Yes	42 (50.0)	34 (20.5)	$\chi^2 = 22.97$; $p < 0.001$	76 (30.4)
		No	42 (50.0)	132 (79.5)		174 (69.6)
Mental health and substance use						
Personality disorder diagnosis	278	Yes	33 (33.3)	15 (8.4)	$\chi^2 = 27.79$; $p < 0.001$	48 (17.3)
		No	66 (66.7)	164 (91.6)		230 (82.7)
Diagnosis of schizophrenia	278	Yes	13 (13.1)	4 (2.2)	$\chi^2 = 13.18$; $p < 0.0011$	17 (6.1)
		No	86 (86.9)	175 (97.8)		261 (93.9)
Diagnosis of depression	278	Yes	41 (41.4)	70 (39.1)	$\chi^2 = 0.14$; $p = 0.707$	111 (39.9)
		No	58 (58.6)	109 (60.9)		167 (60.1)
Diagnosis of bipolar	278	Yes	17 (17.2)	56 (31.3)	$\chi^2 = 6.56$; $p = 0.010$	73 (26.3)
		No	82 (82.8)	123 (68.7)		205 (73.4)
Any learning disability/difficulty reading own language	277	Yes	17 (17.2)	17 (9.6)	$\chi^2 = 3.43$; $p = 0.064$	34 (12.3)
		No	82 (82.8)	161 (90.5)		243 (87.7)
Substance use	278	Yes	18 (18.2)	12 (6.7)	$\chi^2 = 8.72$; $p = 0.003$	30 (10.8)
		No	81 (81.8)	167 (93.3)		248 (89.2)
Service use						
Previous admissions in last 2 years	278	Yes	30 (30.3)	17 (9.5)	$\chi^2 = 19.64$; $p < 0.001$	47 (16.9)
		No	69 (69.7)	162 (90.5)		231 (83.1)
Readmission in the year following discharge	277	Yes	28 (28.3)	38 (21.4)	$\chi^2 = 1.69$; $p = 0.195$	66 (23.8)
		No	71 (71.7)	140 (78.7)		211 (76.2)
Detention under Mental Health Act	278	Yes	36 (36.4)	43 (24.0)	$\chi^2 = 4.77$; $p = 0.029$	79 (28.4)
		No	63 (63.6)	136 (76.0)		199 (71.6)
Satisfaction with service (CSQ)	261	Median (IQR)	25 (19–29)	29 (24–31)	$Z = 3.36$; $p < 0.001$	28 (24–31)
Total needs unmet at one-month postdischarge (CAN-M(S))	278	Median (IQR)	4 (2–7)	3 (1–6)	$Z = -2.75$; $p = 0.006$	3 (1–6)

All statistics are n (%) unless otherwise specified. [1]Fisher's exact test is used.

Table 2: Characteristics of women with and without children's social care involvement at one-year follow-up including those who lost custody.

Variable	N	Level	Social care involvement		Significance test	Total	Lost custody ($n = 15$)
			Yes ($n = 50$)	No ($n = 168$)			
Background factors							
Age (at the time of interview)	218	Mean (SD)	30.0 (6.6)	32.1 (5.7)	$t = 2.22$; $p = 0.028$	31.3 (5.9)	31.3 (1.9)
Ethnicity	218	White	38 (76.0)	125 (74.4)	$\chi^2 = 1.26$; $p = 0.887$[1]	163 (74.8)	11 (73.3)
		Black	5 (10.0)	13 (7.7)		18 (8.3)	3 (20.0)
		Asian	3 (6.0)	15 (8.9)		18 (8.3)	0 (0)
		Mixed	1 (2.0)	7 (4.2)		8 (3.7)	1 (6.7)
		Other	3 (6.0)	8 (4.8)		11 (5.1)	0 (0)
Any other children	218	Yes	28 (56.0)	71 (42.3)	$\chi^2 = 2.94$; $p = 0.087$	99 (45.4)	8 (53.3)
		No	22 (44.0)	97 (57.7)		119 (54.6)	7 (46.7)
Gross yearly household income under £15k	202	Yes	24 (57.1)	31 (19.4)	$\chi^2 = 23.95$; $p < 0.001$	55 (27.2)	11 (84.6)2
		No	18 (42.9)	129 (80.6)		147 (72.8)	2 (15.4)
Higher education	218	Yes	6 (12.0)	74 (44.1)	$\chi^2 = 17.04$; $p < 0.001$	80 (36.7)	3 (20.0)
		No	44 (88.0)	94 (56.0)		138 (63.3)	12 (80.0)
Childhood trauma (CTQ score)	206	Median (IQR)	53 (35–76)	36 (29–51)	$Z = 3.39$; $p = 0.001$	38 (29–56)	49 (35–102)2
Current relationships							
Partner	218	Yes	28 (56.0)	150 (89.3)	$\chi^2 = 28.50$; $p < 0.001$	178 (81.7)	5 (33.3)
		No	22 (44.0)	18 (10.7)		40 (18.4)	10 (66.7)
Intimate partner abuse (total CAS score >3)	192	Yes	19 (45.2)	38 (25.3)	$\chi^2 = 6.23$; $p = 0.013$	57 (29.7)	5 (50.0)2
		No	23 (54.8)	112 (74.7)		135 (70.3)	5 (50.0)
Mental health and substance use							
Personality disorder diagnosis	218	Yes	17 (34.0)	20 (11.9)	$\chi^2 = 13.35$; $p < 0.001$	37 (17.0)	6 (40.0)
		No	33 (66.0)	148 (88.1)		181 (83.0)	9 (60.0)
Diagnosis of schizophrenia	218	Yes	7 (14.0)	9 (5.4)	$\chi^2 = 4.23$; $p = 0.059$[1]	16 (7.3)	6 (40.0)
		No	43 (86.0)	159 (94.6)		202 (92.7)	9 (60.0)
Diagnosis of depression	218	Yes	21 (42.0)	59 (35.1)	$\chi^2 = 0.79$; $p = 0.376$	80 (36.7)	3 (20.0)
		No	29 (58.0)	109 (64.9)		138 (63.3)	12 (80.0)
Diagnosis of bipolar	218	Yes	7 (14.0)	56 (33.3)	$\chi^2 = 7.01$; $p = 0.008$	63 (28.9)	1 (6.7)
		No	43 (86.0)	112 (66.7)		155 (71.1)	14 (93.3)
Any learning disability/difficulty reading own language	218	Yes	13 (26.0)	17 (10.1)	$\chi^2 = 8.19$; $p = 0.004$	30 (13.8)	6 (40.0)
		No	37 (74.0)	151 (89.9)		188 (86.2)	9 (60.0)
Substance use	218	Yes	12 (24.0)	14 (8.3)	$\chi^2 = 9.00$; $p = 0.003$	26 (11.9)	5 (33.3)
		No	38 (76.0)	154 (91.7)		192 (88.1)	10 (66.7)
Service use							
Previous admissions in the last 2 years	218	Yes	16 (32.0)	24 (14.3)	$\chi^2 = 8.07$; $p = 0.004$	40 (18.4)	7 (46.7)
		No	34 (68.0)	144 (85.7)		178 (81.7)	8 (53.3)
Readmission in the year following discharge	218	Yes	23 (46.0)	33 (19.6)	$\chi^2 = 14.02$; $p < 0.001$	56 (25.7)	8 (53.3)
		No	27 (54.0)	135 (80.4)		162 (74.3)	7 (46.7)
Detention under Mental Health Act	218	Yes	21 (42.0)	46 (27.4)	$\chi^2 = 3.87$; $p = 0.049$	67 (30.7)	9 (60.0)
		No	29 (58.0)	122 (72.6)		151 (69.3)	6 (40.0)
Satisfaction with service (CSQ)	201	Median (IQR)	24 (16–27)	29 (25–31)	$Z = 4.51$; $p < 0.001$	28 (24–31)	19 (14–27)[2]
Total needs unmet at one-month postdischarge (CAN-M(S))	218	Median (IQR)	5 (2–7)	3 (1–6)	$Z = -2.61$; $p = 0.009$	4 (1–6)	5 (3–6)

All statistics are n (%) unless otherwise specified. [1]Fisher's exact test is used. [2]10 out of 15 women provided responses to this question.

In multivariable analyses (Table 3), we found evidence that the odds of social care involvement during the acute admission were increased for women who had not attended higher education (OR = 2.21; 95% CI, 1.08–4.53, $p = 0.031$), had a history of childhood trauma (OR = 1.02; 95% CI, 1.00–1.04, $p = 0.015$), had recent experience of domestic abuse (OR = 2.47; 95% CI, 1.13–5.40, $p = 0.023$), had a diagnosis of personality disorder (OR = 2.57; 95% CI, 1.11–5.94, $p = 0.027$) or schizophrenia (OR = 7.56; 95% CI, 2.06–27.66, $p = 0.002$), and/or had a history of prior admissions (OR = 2.70; 95% CI, 1.15–6.34, $p = 0.023$). As few women had a schizophrenia diagnosis, the confidence interval for this variable was wide signifying low precision, so this result should be interpreted with caution. Being single was not independently associated with social care involvement in adjusted analyses, though this was likely in part because women who reported being single were also more likely to report recent domestic abuse (76.4% of those reporting domestic abuse said they were single), so these two variables were closely connected. We did not find evidence that ethnicity independently affected the odds of social care involvement, nor did having a learning disability or a recent history of substance use.

At one-year postdischarge (Table 4), the odds of social care involvement were increased for women with no higher education (OR = 3.88; 95% CI, 1.20–12.56, $p = 0.023$), a history of childhood trauma (OR = 1.03; 95% CI, 1.01–1.06, $p = 0.003$), and for those who had reported being single one-month postdischarge (OR = 5.73; 95% CI, 1.80–18.22, $p = 0.003$). Experiencing domestic abuse in the 12 months before or one month after the postpartum admission did not independently increase the odds of social care involvement at one-year follow-up. We included whether women were readmitted to acute psychiatric services in the year after their postpartum admission as a covariate at this timepoint and this independently increased the odds of social care involvement (OR 2.83; 95% CI, 1.17–6.85, $p = 0.021$). However, having a diagnosis of schizophrenia or personality disorder did not increase the odds of social care involvement one year later, once covariates were taken into account.

Sensitivity analyses using complete case analysis produced results broadly consistent with the imputed data (see Supplementary File), albeit with wider confidence intervals due to lower power/precision.

4. Discussion

In a cohort of mothers who accessed acute psychiatric care after childbirth, we found that over a third (36%) had social care involvement during their acute admission and nearly a quarter (23%) did one year after discharge. Fifteen women (7%) had lost custody of their babies by one-year postdischarge. The overall level of social care involvement is similar to an earlier study, which found that 32% of mothers admitted to an MBU in the UK had some form of social care involvement with their infants [12].

Our findings indicate that mothers who access acute psychiatric care postnatally and have child protection involvement are often experiencing adversity and inequity across multiple areas of their lives: deprivation, a history of childhood trauma, domestic abuse, and/or being single were all higher among these mothers and likely to be interconnected in intricate ways. We found that mothers who were poorer and less educated had a higher likelihood of social care involvement. In adjusted analyses, having less education (which we treated as a proxy measure for deprivation given its high intercorrelation with household income) was associated with social care involvement both during the acute admission and one year later. It was also conspicuous that over four-fifths of women who lost custody of their infants had an annual household income under £15k, compared with around a quarter of mothers overall. Previous research has similarly identified that factors such as income, social class, and education, which can be viewed as indicators of deprivation or access to social resources [25], are connected with social care involvement [6, 11], and a recent study found that poverty, when combined with parental mental health difficulties, is associated with the poorest socioemotional and behavioural outcomes in children [26]. Previous research has highlighted the complex links between poverty and neglect [27], while a recent report by the UK Independent Review of Children's Social Care [28] cautions against conflating poverty with neglect, but argues that poverty creates stress within families, reducing parents' capacity to withstand other shocks and struggles. The authors argue that reducing poverty should be a key governmental priority to improve child outcomes. Our study supports this emphasis on addressing deprivation and the need for practitioners to consider how this contributes to or creates a family's difficulties.

In their UK national audit of MBU admissions, Salmon et al. [6] found that, along with lower social class, mothers who were not in supportive relationships or lacked social support were more likely to face child protection concerns. This was also a key consideration of our study's lived experience advisory group (LEAG), who felt that mothers who are parenting alone, and who do not have strong family networks available to "step in" if needed, can become a target for child removal, rather than being supported in the way they need (e.g., through offers of practical support with childcare). The LEAG noted that, in our study, two-thirds of mothers who lost custody of their infants were single compared with fewer than a fifth of mothers overall and that being single one-month after discharge from acute services increased the odds of social care involvement a year later. While being single did not independently influence the odds of social care involvement during the acute admission in adjusted analyses, experiencing domestic abuse did independently increase the odds of social care involvement at this timepoint. As the majority of women reporting domestic abuse also said they were single, it is likely that some confounding occurred between these two variables, and overall our findings suggest that vulnerability in women's relationships is associated with social care involvement.

We also found that mothers with a history of trauma in their own childhoods were more likely to have social care involvement, both during their acute postpartum admission and one year later, while a striking three-quarters of mothers

Table 3: Factors associated with children's social care involvement during the acute admission ($n = 278$).

	Covariate	Unadjusted (univariable)	P	Adjusted (multivariable)	P
Maternal	Age	0.94 (0.90–0.98)	0.007	0.99 (0.94–1.05)	0.689
Background	No higher education	3.98 (2.23–7.11)	<0.001	2.21 (1.08–4.53)	0.031
	Childhood trauma (CTQ score)	1.03 (1.02–1.05)	<0.001	1.02 (1.00–1.04)	0.015
	Ethnicity: White	Reference		Reference	
	Black	1.93 (0.77–4.85)	0.162	2.22 (0.71–6.99)	0.171
	Asian	1.52 (0.66–3.51)	0.331	1.66 (0.60–4.62)	0.333
	Mixed	1.10 (0.31–3.89)	0.879	0.65 (0.14–3.09)	0.585
	Other	0.43 (0.09–2.04)	0.287	0.55 (0.78–3.81)	0.542
Relationships	Domestic abuse (CAS score)	3.90 (2.23–6.82)	<0.001	2.47 (1.13–5.40)	0.023
	Single/no partner	4.02 (2.13–7.59)	<0.001	1.44 (0.60–3.45)	0.414
Mental health diagnosis and substance use	Personality disorder	5.47 (2.79–10.72)	<0.001	2.57 (1.11–5.94)	0.027
	Schizophrenia	6.61 (2.09–20.89)	0.001	7.56 (2.06–27.66)	0.002
	Learning disability	1.93 (0.94–3.98)	0.074	0.77 (0.32–1.87)	0.568
	Substance use	3.09 (1.42–6.73)	0.004	1.78 (0.67–4.77)	0.250
Service use	Prior admissions	4.14 (2.15–8.00)	<0.001	2.70 (1.15–6.34)	0.023

Table 4: Factors associated with children's social care involvement at one-year postdischarge ($n = 218$).

	Covariate	Unadjusted (univariable)	P	Adjusted (multivariable)	P
Maternal background	Age	0.94 (0.89–0.99)	0.029	0.99 (0.92–1.06)	0.710
	No higher education	5.77 (2.33–14.28)	<0.001	3.88 (1.20–12.56)	0.023
	Childhood trauma (CTQ)	1.04 (1.02–1.06)	<0.001	1.03 (1.01–1.06)	0.003
	Ethnicity: White	Reference		Reference	
	Black	1.27 (0.42–3.78)	0.673	1.28 (0.28–5.87)	0.753
	Asian	0.66 (0.18–2.39)	0.525	0.78 (0.17–3.66)	0.753
	Mixed	0.47 (0.06–3.94)	0.486	0.15 (0.01–2.07)	0.155
	Other	1.23 (0.31–4.88)	0.765	2.21 (0.33–14.67)	0.409
Relationships	Domestic abuse (CAS)	2.68 (1.36–5.27)	0.004	0.84 (0.26–2.66)	0.764
	Single/no partner	6.55 (3.12–13.75)	<0.001	5.73 (1.80–18.22)	0.003
Mental health diagnosis and substance use	Personality disorder	3.81 (1.80–8.06)	<0.001	1.14 (0.39–3.33)	0.814
	Schizophrenia	2.88 (1.01–8.17)	0.047	2.69 (0.58–12.41)	0.204
	Learning disability	3.12 (1.39–6.99)	0.006	1.45 (0.52–4.07)	0.478
	Substance use	3.47 (1.49–8.12)	0.004	2.50 (0.80–7.81)	0.115
Service use	Prior admissions	2.82 (1.35–5.89)	0.006	1.82 (0.65–5.14)	0.257
	Re-admission	3.48 (1.78–6.84)	<0.001	2.83 (1.17–6.85)	0.021

who lost custody of their infants reported moderate-severe childhood trauma. This adds weight to past research showing that mothers involved with children's social care have themselves often experienced trauma and social work involvement as children [29] and that trauma in childhood may influence mothers' parenting experiences in a complex intergenerational interplay between a parent's early experiences, their own parenting behaviour, and their relationship with their child [30, 31]. An implication of this is that mental health and social care services need to find ways to identify and support trauma survivors in motherhood to help prevent a cycle of trauma and intervention repeating across generations. Our LEAG members believed addressing childhood trauma was crucial: they felt past trauma is often at the "root" of mothers' difficulties, yet is typically left neglected and unaddressed by services, which tend to intervene too late, and to focus on more "superficial" symptoms or exclusively on risks of trauma to the infant rather than on the impact of a mother's own trauma history.

Women with schizophrenia or personality disorder diagnoses were also more likely to have social care involvement during their acute admission. While these diagnoses were not independently associated with social care involvement one year later, two fifths of women who lost custody of their infants had a diagnosis of personality disorder and two fifths had a diagnosis of schizophrenia (compared with just 17% and 7%, respectively, overall). This reinforces prior research which has similarly identified elevated rates of social care involvement and/or custody loss amongst mothers with these diagnoses [6, 11]. Whilst these diagnoses have been linked with problematic parent-infant interactions [32, 33], Salmon et al. [6] also found that mothers with schizophrenia diagnoses were perceived by psychiatric staff to be at greater risk of harming their infants, but in fact were no more likely to harm them before or during admission. Other research too has raised concerns about potentially stigmatising attitudes towards mothers given these two diagnoses [34, 35], who often have

childhood trauma histories and who describe feeling failed and retraumatised by services [36, 37]. Our findings suggest that further research into these women's experiences is important, especially as these diagnoses are also associated with recurrent psychiatric admissions [38], and we found that repeated contact with psychiatric services also increased the odds of social care involvement.

Some factors did not show evidence of an association with social care involvement in multivariable models, including substance use (which our LEAG believed could have been underreported), ethnicity, and having a learning disability. Nonetheless, the LEAG were struck by the fact that a fifth of women who lost custody of their infants were from a Black background, even though fewer than a tenth of women in our cohort were Black overall. Bywaters et al. [39] found that Black children of Caribbean heritage were more than twice as likely as White British children to be "looked after" by the state, even though they were no more likely to be on a child protection plan, and further investigation of possible reasons for such differences across ethnicities is urgently needed. Similarly, it was conspicuous that two-fifths of women who lost custody of their infants had a learning disability or difficulty reading their own language. This too warrants further investigation, especially as research suggests that parents with learning disabilities find their interactions with social workers particularly confusing and intimidating, potentially increasing the likelihood of poorer outcomes [40].

Our study was unique in also examining women's experiences of acute mental health services and we found that women with social care involvement were less satisfied overall with the care they received. In research with mothers involved with recurrent care proceedings, Mason et al. [31] found that those who had experienced childhood trauma and adversity, often disengaged from services and mistrusted professional help. They argue that this is a form of self-protection and that professionals may engage more effectively with these mothers if they adopt trauma-informed approaches that acknowledge the impact of women's social histories on their experiences of, and interactions with, services. Importantly, we found that women with children's social care involvement also had more unmet needs after discharge from acute services, especially around not having appropriate accommodation, experiencing financial difficulties, and being affected by abusive relationships. This is a significant finding as it suggests that services may not currently meet the wider needs of these women adequately. Hospital admissions and crisis care are expensive and intensive interventions that may offer opportunities to deliver appropriate longer-term support to women and infants experiencing a range of inequalities in the community. Our study suggests better use could be made of this "window of opportunity," and increased collaboration between mental health, children's social care, and the third sector (e.g. specialist domestic abuse services) in the perinatal period may be one way forward.

4.1. Limitations. While our cohort of women was in many respects diverse, covering 42 health care provider areas across England and Wales, our sample size was nonetheless relatively small, reducing the power and precision of our analyses. Future research should aim to expand on our findings in larger cohorts, including greater numbers of mothers from groups of particular interest such as those from ethnic minority backgrounds, those with learning disabilities, mothers with diagnoses of personality disorder and schizophrenia, and those who lost custody of their infants.

Data collection included interviews, reviews of case notes, and collection of local authority data. While this helped triangulate findings and minimise missing data, it remains possible, as the LEAG noted, that women may underreport some experiences, such as childhood trauma, substance use, or domestic abuse. Furthermore, while our study was novel in following up women one year after discharge to explore social care involvement longer-term, data on variables such as substance use, domestic abuse, and relationship status were not collected again at follow-up. Some data may therefore have been less current at follow-up, and future research would benefit from repeating measures at multiple timepoints.

5. Conclusion

Our findings indicate that mothers with child protection involvement accessing acute postpartum psychiatric care often face adversity and disadvantage across many areas of their lives. But, they are less satisfied with their mental health care and have more needs left unmet postdischarge. Relationships between contributing factors are difficult to disentangle, and previous research has highlighted the intricate links between poverty, education, childhood trauma, social support, and mental health [27, 41]. However, services have the potential to deepen or help alleviate existing inequity and adversity, and our findings raise the possibility that services do not currently meet these women's needs fully. It has been estimated that the cost of not accessing high quality perinatal mental health care in the UK is £8.1 billion per year of births, with 72% of this attributable to adverse consequences for the infant [15]. It is vital that future research focuses on examining how mental health services can work effectively with women with social care involvement in the postnatal period, supporting the mother-infant dyad where possible and considering how to ensure the best outcomes for mothers and their babies.

Data Availability

Full-study protocol (approved by the Research Ethics Committee) and data are available from Chief Investigator Professor Louise Howard (louise.howard@kcl.ac.uk) upon reasonable request.

Additional Points

What is known about this topic are given as follows. (i) Women have an increased risk of being hospitalised for a severe psychiatric diagnosis in the postpartum period. (ii) Mothers with severe postpartum psychiatric diagnoses are

more likely to have child protection involvement with their infants. What this paper adds are mentioned as follows. (i) We found that women who access acute psychiatric services postnatally and have child protection involvement often experience significant wider adversities and disadvantages. (ii) These mothers are also less satisfied with their mental health care and have more unmet needs after discharge. (iii) Acute psychiatric care is an expensive, intensive intervention. Our study suggests that better use could be made of this potential "window of opportunity" to support women and infants experiencing a range of inequalities in the community.

Disclosure

Any views expressed here are those of the project investigators and do not necessarily represent the views of What Works for Children's Social Care or the Department of Health and Social Care.

Conflicts of Interest

L.M.H. chaired the NICE CG192 guidelines development group on antenatal and postnatal mental health in 2012–2014. The other authors have no conflicts of interest to declare.

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Supplementary Materials

The Supplementary File includes the results of additional sensitivity analyses which we carried out (referred to in Section 3.3). These sensitivity analyses repeated the analyses reported in the main manuscript, but using complete case data (i.e., including only those participants with complete data across all included variables in order to provide additional confirmation of the main findings). Table 1 in the Supplementary File is a complete case analysis of factors associated with having children's social care involvement during an acute psychiatric admission (i.e., at timepoint 1 in the study). Table 2 in the Supplementary File is the same, but at the one-year follow-up (i.e., at timepoint 2 in the study). (*Supplementary Materials*)

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