

Postnatal Depression in New Zealand:
Findings from the 2015 New Mothers' Mental Health Survey

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EXECUTIVE SUMMARY

INTRODUCTION

The purpose of this report is to add to current knowledge around postnatal depression (PND) in New Zealand by providing an indication of PND prevalence as well as an overview of the social and life experiences, as well as help-seeking knowledge and attitudes, of women who might be experiencing PND. To this end, the current report uses data from the New Mothers' Mental Health Survey (NMMHS), a cross-sectional survey conducted between July and September 2015.

METHOD

The NMMHS was conducted online, with 805 women who had given birth during the previous two years. Respondents were recruited via the Bounty New Zealand database.

Questionnaire

Respondents completed the Edinburgh Postnatal Depression Scale (EPDS; Cox, Holden, & Sagovsky, 1987) to assess PND (referred to here as EPDS-PND), and provided information on their socio-demographic characteristics. Respondents also completed measures to assess anxiety and psychological distress, and were asked questions to assess their social and life experiences, as well as their knowledge, attitudes and behaviour around help-seeking.

Data analysis

Proportions were calculated first to estimate the prevalence of EPDS-PND in New Zealand. Logistic regression analyses were then used to assess whether EPDS-PND prevalence varied by socio-demographic factors, and whether social experiences and help-seeking behaviours differed for those who met the criteria for EPDS-PND compared with those who did not.

RESULTS

PND prevalence

Overall, 14% of respondents met the criteria for EPDS-PND. After adjusting for covariates, people who identified as Asian and those who had a low household income (under \$40,000) were more likely to meet the criteria for EPDS-PND.

Social factors and connectedness

Respondents who met the criteria for EPDS-PND were more likely to give responses that indicated greater life difficulties, lower coping self-efficacy, lower social connectedness, more isolation, lower family/whānau wellbeing, and lower life satisfaction.

Help-seeking

The majority of respondents believed they could identify depression in themselves or in a friend, regardless of whether or not they themselves met the criteria for EPDS-PND.

Those with EPDS-PND and those without had similar knowledge about the places they *could* go to seek help if they thought they might be experiencing depression. The main potential source of help listed by respondents (regardless of their EPDS-PND status) was their doctor or general practitioner.

However, when asked where they would be *most likely* go for help if they thought they might be experiencing depression, respondents who met the criteria for EPDS-PND were more likely to say they did not know where they would go, and more likely to say they would not seek help.

CONCLUSION

This report provides useful insight into some of the characteristics and experiences of women potentially experiencing PND in New Zealand.

INTRODUCTION

Postnatal depression encompasses symptoms of physical, emotional and psychological upheaval experienced by women during the postpartum period. For many parents, the arrival of a baby may be a time filled with both positive emotions and significant stressors due to the physical and emotional demands of caring for a newborn. However, some women also experience significant distress or disability due to symptoms of depression and anxiety experienced during this time. For some, these symptoms may continue for up to a year or more postpartum (Bewley, 1999; Goodman, 2004; Leahy-Warren & McCarthy, 2007).

There has been limited research into PND in a New Zealand context, but the few studies on PND in New Zealand report prevalence rates typically ranging from 11 to 16% (Abbott & Williams, 2006; Ekeroma et al., 2012; Thio et al., 2006). The purpose of this report is to add to current knowledge around PND in New Zealand by using data from the 2015 New Mothers' Mental Health Survey (NMMHS). This report provides an indication of PND prevalence as well as an overview of the social and life experiences, and help-seeking knowledge and attitudes, of women who might be experiencing PND.

METHOD

DESIGN OVERVIEW

The NMMHS was an online survey designed to assess different aspects of mental health and wellbeing among women who had given birth within the last two years. Due to the low population base rate of new mothers, names and contact details of potential respondents were obtained from an online panel (Bounty New Zealand). Note that the NMMHS was not designed to be nationally-representative of all women who gave birth in the last two years, however it did utilise a large and diverse sample in order to gain some insight into PND in the New Zealand context. Fieldwork was conducted by National Research Bureau Ltd. (NRB), between July and September 2015.

RESPONDENTS

The names and contact details of 2,407 names of women who had recently given birth at locations around New Zealand were provided by Bounty New Zealand. Of these, 1,770 were contacted by the fieldwork company by telephone and invited to participate in the online survey.

Criteria for participation in the NMMHS were that respondents had given birth within the last two years, and had provided Bounty New Zealand with a name, a telephone number, and an email address. There were no further restrictions for participation. Respondents were placed in the draw to win either an iPad Air or a Samsung Galaxy Tab 2 for completing the survey.

Two hundred and twenty women were initially contacted by telephone and invited to participate in a pilot survey; 96 completed it. Following successful completion of the pilot, new respondents were

invited to participate in the final survey. The response rate was 56.5%, with a final sample size of 805 women.

QUESTIONNAIRE

The NMMHS was developed by HPA in consultation with the fieldwork company. The Edinburgh Postnatal Depression Scale (EPDS), which was used as a measure of PND, was used with appropriate permission. The survey also included questions to assess respondents' socio-demographic characteristics, as well as their social and life experiences.

Measure of PND: EPDS

The EPDS is a validated screening tool designed to assess symptoms of depression within the postpartum period, as distinct from the normative symptoms of pregnancy and postpartum adjustment (Lussier, David, Saucier, & Borgeat, 1996). The EPDS comprises 10 items designed to rate symptoms of PND, as experienced in the past seven days. Answers are on a four-point Likert scale ranging from one (most of the time) to four (no, not at all). Total scores range from zero to 30, with scores of 13 or above considered indicative of EPDS-PND (Cox et al., 1987).

Other measures

This report also covers questions included in the NMMHS relating to respondents' socio-demographic characteristics, feelings of social connectedness, family/whānau wellbeing (derived with permission from Statistics New Zealand's Te Kupenga 2013 questionnaire on Māori wellbeing), personal wellbeing, and help-seeking attitudes.

PROCEDURE

To assess suitability of the survey questionnaire, a pilot study was first conducted with 96 new mothers. Results from the pilot survey indicated that the questionnaire was performing to purpose, and only minor wording changes were made to the final version.

Potential respondents for the final survey were contacted by telephone and invited to participate. They were then sent an email link to the online questionnaire. Once respondents logged in to the questionnaire, they were able to save their progress and return later. Email reminders were issued to those who agreed to participate but did not commence, or only partially completed, the survey.

DATA ANALYSIS

Respondents were split into two groups, based on their EPDS scores. In line with recommendations by Cox et al. (1987), respondents scoring 13 and above on the EPDS are described in this report as meeting the criteria for EPDS-PND. Respondents scoring 12 or below are described as not meeting the criteria for EPDS-PND, or having 'no depression'. However, because the EPDS is intended as a screening tool only, these terms should be interpreted as indications of PND symptoms, rather than definitive diagnoses. Odds ratios (ORs), 95% confidence intervals (CIs), and statistically significant p -values are reported for each comparison.

Prevalence analyses

EPDS-PND prevalence rates were examined by ethnicity, education, household income, mother's age, number of children, and age of youngest child. Initially, each socio-demographic variable was examined using univariate logistic regression in relation to PND prevalence. All socio-demographic variables in the univariate analysis were then considered together using multivariate logistic regression, in order to control for confounding variables.

Social and life experiences and help-seeking analyses

Social experiences and help-seeking behaviours were assessed with questions relating to feelings of social connectedness, family/whānau wellbeing, help-seeking attitudes, personal wellbeing, and psychological experiences. For questions that used a five-point agreement scale, "agree" and "strongly agree" responses were combined to indicate total agreement. When respondents selected "don't know" or "prefer not to say", that questionnaire item was not scored. Logistic regression was then used to compare differences in the social experiences and help-seeking behaviour of respondents who met the criteria for EPDS-PND to those who did not.

RESULTS

RESPONDENT CHARACTERISTICS

A total of 805 new mothers completed the survey, the socio-demographic characteristics of whom are shown in Table 1. Note that the number of respondents in each category may not add to the total sample because some respondents did not answer every question.

Table 1. Demographic characteristics of all respondents

	N	%
Overall	805	
Ethnicity		
Māori	97	12
Pacific	29	4
Asian	71	9
NZ European/Other	606	75
Education		
No formal	38	5
Secondary	239	31
Trade certificate/professional qualification	174	23
Degree/postgrad	319	41
Total household income (\$1,000 over the past 12 months)		
<20	49	7
20-40	71	10
40-60	156	22
60-80	135	19
80-100	135	19
100-150	124	17
>150	55	8
Youngest child age		
0-1	745	93
1-2	54	7
Mother's age		
15-24	104	13
25-34	490	61
>35	211	26
Number of children		
1	462	57
2	231	29
3	70	9
4+	42	5

PND PREVALENCE: UNIVARIATE ANALYSIS

EPDS scores were calculated for 769 of respondents who completed each item in the EPDS. Scores ranged from zero to 25, with a mean score of 7.2.

Overall prevalence of EPDS-PND amongst all respondents was consistent with rates previously reported in New Zealand, in that 14% (95% CI [11, 16%]) of all respondents met the criteria for EPDS-PND (Abbott & Williams, 2006; Carter et al., 2005; Ekeroma et al., 2012; Gao et al., 2007, 2010; McGill et al., 1995; Thio et al., 2006; Waldie et al., 2015; Webster et al., 1994).

To assess the rate of PND in different socio-demographic subgroups, differences in the percentage of respondents who met the criteria for EPDS-PND in each subgroup were examined using univariate logistic regression. The socio-demographic variables examined were ethnicity, highest educational qualification, household income, mother's age, number of children, and age of youngest child.

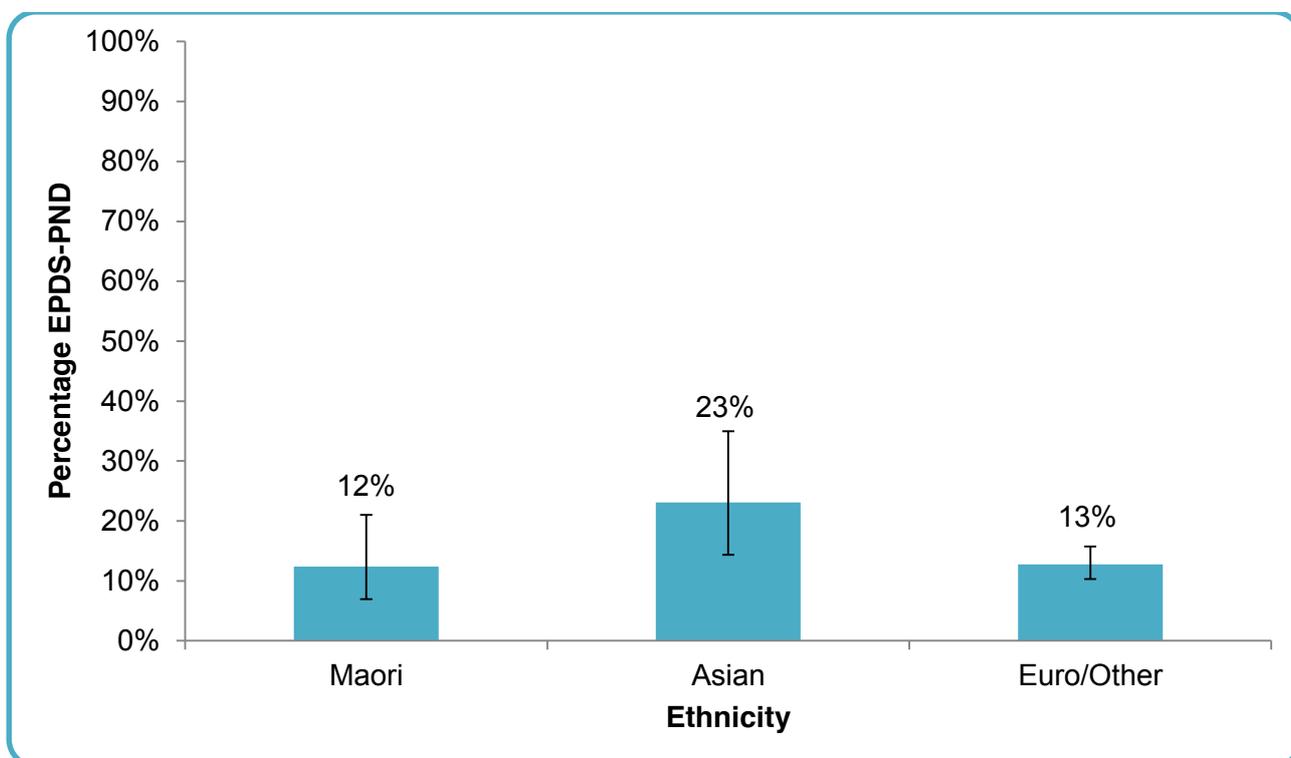
Ethnicity

All respondents were asked which ethnic group they belonged to. Respondents could choose more than one ethnicity, however when multiple selections occurred, ethnicity was prioritised in the order of Māori, Pacific, Asian, and NZ European/Other, as recommended by the Ethnicity Data Protocols for the Health and Disability Sector (Ministry of Health, 2004).

Percentages of respondents in each ethnic group who met the criteria for EPDS-PND are displayed in Figure 1. Twenty three percent (95% CI [14, 35%]) of those who identified as Asian met the criteria for EPDS-PND, compared with 13% (95% CI [10, 16%]) of those who identified as NZ European or Other, 12% (95% CI [7, 21%]) of those who identified as Māori, and 11% (95% CI [4, 30%]) of those who identified as Pacific. However, the prevalence rate for respondents who identified as Pacific may be an unreliable estimate due to a small sample size for this group.

Univariate logistic regression indicated a significant effect of Asian ethnicity, in that respondents who identified as Asian were more likely than those who identified as NZ European or Other to meet the criteria for EPDS-PND (OR = 2.05, 95% CI [1.10, 3.83], $p = .03$). There were no significant differences in prevalence rates for respondents identifying with other ethnicities, although note that previous research with a larger sample size has indicated higher rates of EPDS-PND among Pacific women (Abbott & Williams, 2006).

Figure 1. Percentages of respondents who met the criteria for EPDS-PND, by ethnicity



Note: Respondents of Pacific Island ethnicity are not shown as the estimate was unreliable (due to insufficient sample size).

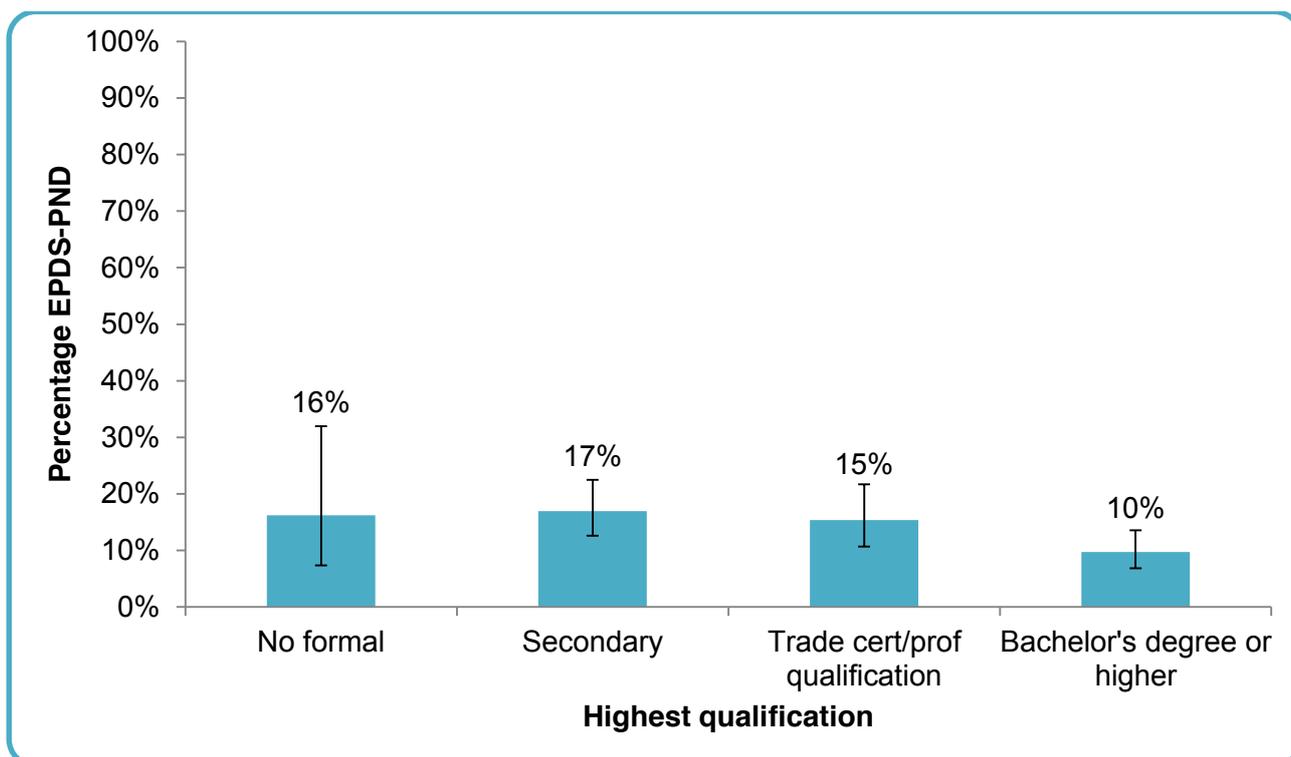
Education

All respondents were asked to indicate their highest educational qualification.

Percentages of respondents who met the criteria for EPDS-PND are displayed by highest educational qualification in Figure 2. Sixteen percent (95% CI [7, 32%]) of those who reported having no formal education met the criteria for EPDS-PND; however, this estimate may be unreliable due to a small sample size for this group. Seventeen percent (95% CI [13, 22%]) of respondents who selected secondary school as their highest qualification met the criteria for EPDS-PND, compared with 15% (95% CI [11, 22%]) who selected “trade certificate or professional qualification”, and 10% (95% CI [7, 14%]) who selected “bachelor’s degree or higher”.

Univariate logistic regression indicated that PND prevalence varied with education level, in that respondents who reported having higher educational qualifications were less likely to meet the criteria for EPDS-PND. Specifically, those whose highest qualification was secondary school completion were more likely than those with at least a bachelor’s degree to meet the criteria for EPDS-PND (OR = 1.90, 95% CI [1.14, 3.17] $p = .02$).

Figure 2. Percentages of respondents who met the criteria for EPDS-PND, by education level

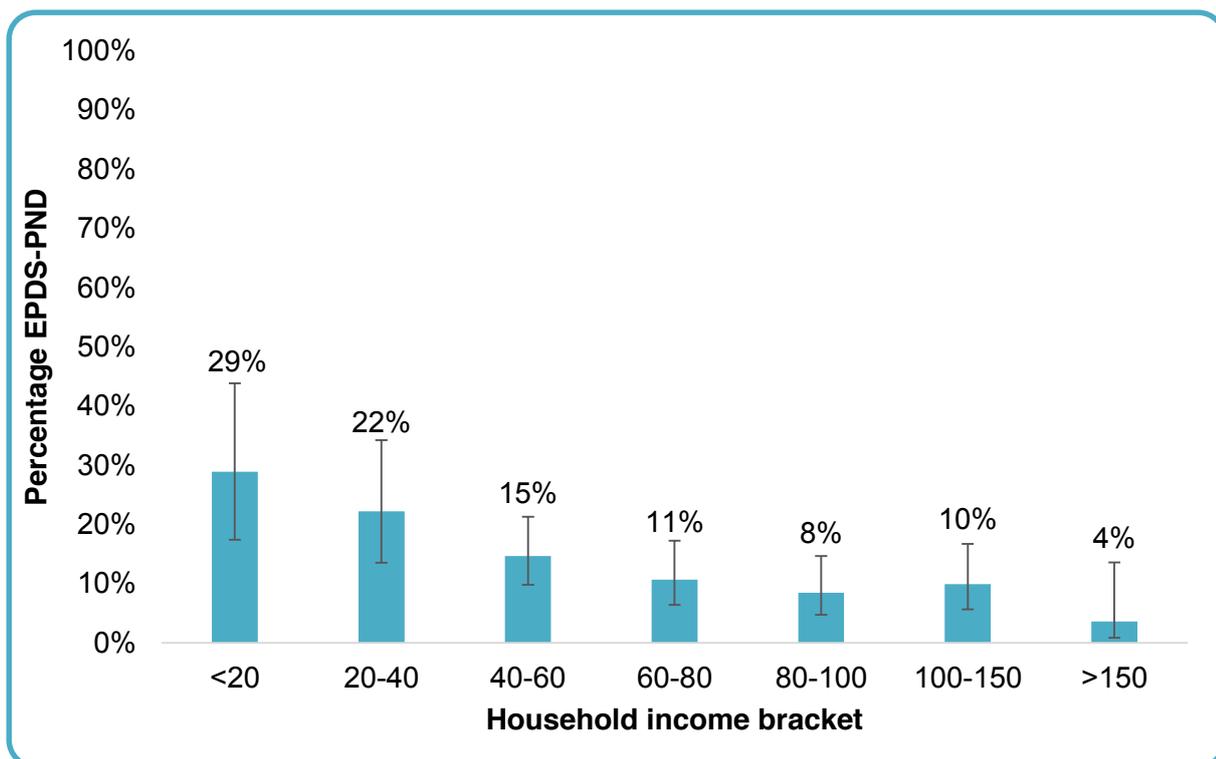


Household income

All respondents were asked which income bracket best fit their total household income before tax, over the last 12 months.

Percentages of respondents who met the criteria for EPDS-PND in each income bracket are displayed in Figure 3. Univariate logistic regression showed that EPDS-PND prevalence varied by household income, such that for every step increase in income bracket, the odds of meeting criteria for EPDS-PND decreased by 0.73 (OR = 0.73, 95% CI [0.64, 0.84] $p < .001$).

Figure 3. Percentages of respondents who met the criteria for EPDS-PND by income bracket



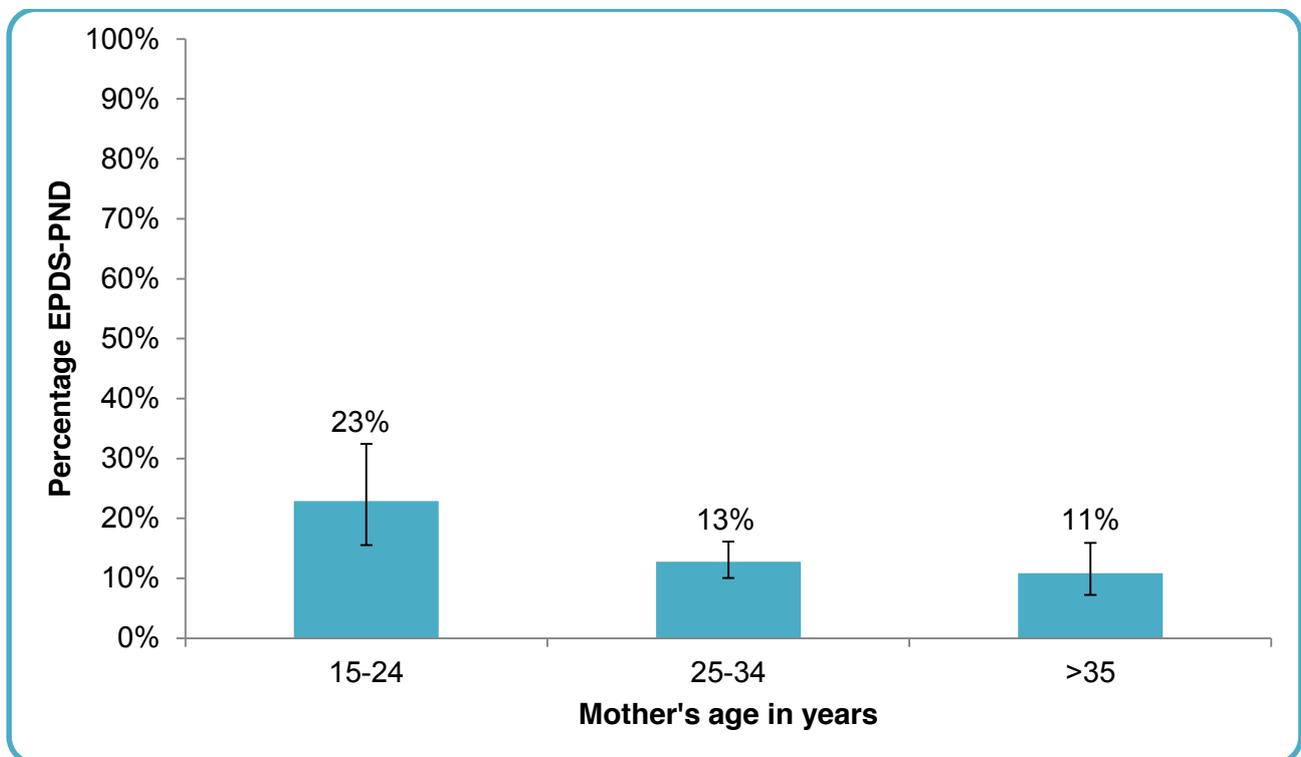
Mother's age

Respondents were asked to indicate which age bracket they belonged to.

Percentages of those who met the criteria for EPDS-PND in each age category are displayed in Figure 4. Twenty three percent (95% CI [16, 32%]) of those in the 15 to 24 age category met the criteria for EPDS-PND, compared with 13% (95% CI [10, 16%]) of those in the 25 to 34 age category, and 11% (95% CI [7, 16%]) of those in the over 35 age category.

Univariate logistic regression indicated EPDS-PND prevalence varied by mother's age, in that younger respondents (in the 15-24 age category) were more likely than older respondents (in the over 35 age category) to meet the criteria for EPDS-PND (OR = 2.45, 95% CI [1.23, 4.68], $p = .01$).

Figure 4. Percentages of respondents who met the criteria for EPDS-PND, by age category



Number of children

Respondents were asked to indicate how many children they had who were under 18 years of age. Categories were one, two, three, and four or more children.

Univariate logistic regression indicated no significant effects of number of children on the prevalence of EPDS-PND.

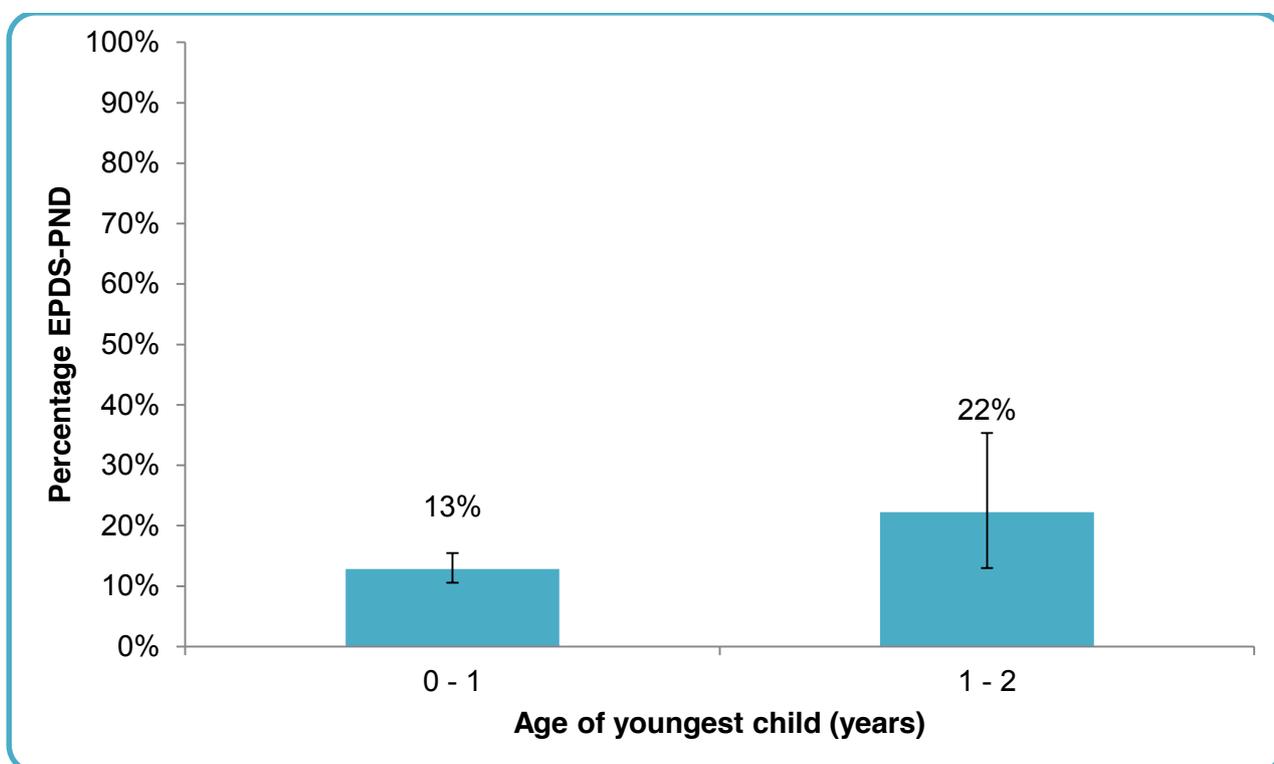
Age of youngest child

To give an estimate of time postpartum, respondents were asked about the ages, in years, of each of their children. This information was used to calculate the age of their youngest child.

The percentage of those who met the criteria for EPDS-PND are displayed by age of youngest child in Figure 6. Thirteen percent (95% CI [11, 15%]) of women whose youngest child was under one-year-of-age met the criteria for EPDS-PND, compared with 22% (95% CI [13, 35%]) of those whose youngest child was aged between one and two years.

Univariate logistic regression indicated that respondents whose youngest child was aged between one and two years were only marginally (but not significantly) more likely than respondents whose youngest child was under one-year-of-age to meet the criteria for EPDS-PND (OR = 1.94, 95% CI [0.99, 3.83], $p = .06$).

Figure 5. Percentage of respondents who met the criteria for EPDS-PND, by age of youngest child



PND PREVALENCE: MULTIVARIATE ANALYSIS

Results from the initial univariate analyses indicated that PND prevalence varied by respondents' ethnicity, household income, education level, and mother's age. Because several of these characteristics are likely to be covariates (eg, income may covary with education level and age), socio-demographic characteristics and PND prevalence were placed into a multivariate model to control for the relative effects of each variable.

After all other significant socio-demographic variables were controlled for, Asian ethnicity (compared with NZ European/Other; $p = .05$) and lower household income ($p = .04$) emerged as the only significant predictors of EPDS-PND. Results from the multivariate analysis with adjusted odds ratios (AOR) 95% confidence intervals (CI) are displayed in Table 2, with significant variables highlighted in bold.

Table 2. Multivariate model results

	Adjusted Odds Ratio (95% CI)	<i>p</i> -value
Ethnicity (ref = NZ European/Other)		
Māori	0.55 (0.24, 1.26)	0.14
Pacific	0.35 (0.08, 1.64)	0.19
Asian	2.09 (1.02, 4.23)	0.04
Education (ref = degree/postgrad)		
No formal	1.32 (0.43, 4.05)	0.62
Secondary school	1.35 (0.73, 2.49)	0.34
Trade cert	1.17 (0.61, 2.24)	0.63
Income		
Overall effect	0.74 (0.63, 0.88)	<.001
Mother's age (ref = 35+)		
15-24	1.65 (0.76, 3.60)	0.21
25-34	1.06 (0.60, 1.88)	0.84

SOCIAL FACTORS AND LIFE EXPERIENCES

Respondents were asked to indicate their agreement with statements relating to perceived life difficulty, social support and connectedness, feelings of isolation, and family wellbeing. Responses from those who met the criteria for EPDS-PND were compared with those who did not meet the criteria. On every item relating to social factors and connectedness, those who met the criteria for EPDS-PND were less likely to agree with positive statements relating to these areas, and more likely to agree with statements that indicated difficulties in these areas.

Life difficulty and coping self-efficacy

To assess perceived life difficulty and coping self-efficacy, respondents were asked to indicate their agreement with the statements, “The last 12 months have been among the most difficult times of my life”, and “I am able to cope with everyday stresses of life.”

Overall, one-half (51%; 95% CI [48, 55%]) of respondents agreed that the last 12 months had been the most difficult of their life, while three quarters (77%; 95% CI [74, 80%]) agreed they were able to cope with everyday stresses. Respondents who met the criteria for EPDS-PND were less likely than those who did not meet the criteria to agree with either statement (Table 3).

Table 3 shows the percentage of respondents in each group who agreed with statements relating to life difficulty and coping self-efficacy. Odds ratios, 95% confidence intervals, and *p*-values are shown for respondents who met the criteria for EPDS-PND, compared with those who did not.

Table 3. Percentage of respondents endorsing questions relating to life difficulty

Item	No depression	EPDS-PND (ref)	OR (95% CI)	<i>p</i> -value
<i>“The last 12 months have been among the most difficult times of my life.” (Strongly agree/agree)</i>	47%	79%	4.24 (2.58, 6.96)	<.001
<i>“I am able to cope with everyday stresses of life.” (Strongly agree/agree)</i>	85%	31%	0.08 (0.05, 0.12)	<.001

Social support and connectedness

To assess perceived social connectedness, respondents were asked to indicate their agreement with the statements, “I make an effort to see family or friends I don’t live with”, and “I can always rely on a friend or family member for support if I need it.” Overall, 83% (95% CI [80, 85%]) of respondents agreed that they made an effort to see friends and family. A similar proportion (85%; 95% CI [83, 88%]) agreed that they could always rely on a friend or family member for support. Respondents who met the criteria for EPDS-PND were less likely than those who did not meet the criteria to agree with either of these statements (see Table 4).

Respondents were also asked to indicate how easy (five-point scale: very easy to very hard) it would be for them to find someone to (i) help with things such as pets, mail, or checking their house, if they were away from home; and (ii) help them in times of need, for example providing a place to stay if they suddenly needed it. Overall, 76% (95% CI [73, 79%]) of respondents indicated that it would be “easy” or “very easy” for them to find someone to help if they were away from home; a similar proportion (78%; 95% CI [75, 80%]) indicated that it would be either “easy” or “very easy” for them to find someone to help them with a place to stay if they suddenly needed one. Respondents who met the criteria for EPDS-PND were less likely than those who did not meet the criteria respond “easy” or “very easy” to either of these statements (Table 4).

Table 4 shows the percentage of respondents in each group who responded positively to items relating to social support and connectedness. ORs, 95% CIs, and *p*-values are shown for respondents who met the criteria for EPDS-PND, compared with those who did not.

Table 4. Percentage of respondents who endorsed questions relating to social support and connectedness

Item	No depression	EPDS-PND (ref)	OR (95% CI)	<i>p</i> -value
<i>“I make an effort to see family or friends I don’t live with.” (Strongly agree/agree)</i>	86%	67%	0.34 (0.21, 0.53)	<.001
<i>“I can always rely on a friend or family member for support if I need it” (Strongly agree/agree)</i>	90%	61%	0.17 (0.11, 0.29)	<.001
<i>“How easy or hard would it be to find someone to help you with things such as looking after pets, collecting mail, or checking your house while you are away from home?” (Very easy/easy)</i>	80%	56%	0.31 (0.20, 0.48)	<.001
<i>“How easy would it be to find someone to help you in times of need, such as providing a place to stay if you suddenly needed one?” (Very easy/easy)</i>	82%	56%	0.28 (0.18, 0.43)	<.001

Feelings of isolation

To assess feelings of isolation, respondents were asked to indicate how often in the last four weeks (five-point scale: none of the time to all of the time) they had felt isolated from others.

Overall, 67% (95% CI [63, 70%]) said that they had felt isolated at least some of the time.

Respondents who met the criteria for EPDS-PND were more likely than those who did not meet the criteria to say that they had felt isolated at least some of the time (Table 5).

Respondents were also asked to indicate whether or not (yes/no) they had felt personally excluded from a social situation over the past year. Overall, 43% (95% CI [40, 47%]) said that there had been such an occasion. Respondents who met the criteria for EPDS-PND were more likely than those who did not meet the criteria to respond “yes” to this item (see Table 5).

Table 5 shows the percentage of respondents in each group who endorsed questions relating to isolation and social exclusion. ORs, 95% CIs, and *p*-values are shown for respondents who met the criteria for EPDS-PND, compared with those who did not.

Table 5. Percentages of respondents who endorsed questions relating to feelings of isolation

Item	No depression	EPDS-PND (ref)	OR (95% CI)	<i>p</i> -value
<i>“In the last four weeks, how often have you felt isolated from others?” (All/most/some/a little of the time)</i>	62%	98%	31.88 (7.80, 130.32)	<.001
<i>“In the past year, has there been an occasion when you felt personally excluded from a social situation?” (Yes)</i>	38%	73%	4.40 (2.75, 7.04)	<.001

General family/whānau wellbeing

To assess general family/whānau wellbeing, respondents were asked to indicate how well their family/whānau (i) got along with one another and (ii) was doing these days. Response options ranged from one (very well) to five (very badly). Overall, 83% (95% CI [85, 89%]) of respondents indicated that their family/whānau got along well or very well; a similar proportion (86%; 95% CI [83, 88%]) indicated their family/whānau was currently doing well or very well. Respondents who met the criteria for EPDS-PND were less likely than those who did not meet the criteria to respond ‘well’ or ‘very well’ to either of these questions (Table 6).

Table 6 shows the percentage of respondents in each group who responded ‘well’ or ‘very well’ to items relating to general family/whānau wellbeing. ORs, 95% CIs, and *p*-values are shown for respondents who met the criteria for EPDS-PND, compared with those who did not.

Table 6. Percentages of respondents who endorsed questions relating to family/whānau wellbeing

Item	No depression	EPDS-PND (ref)	OR (95% CI)	<i>p</i> -value
<i>“In general, how would you rate the way your family/whānau get along with one another?” (Very well/well)</i>	91%	68%	0.20 (0.12, 0.33)	<.001
<i>“In general, how would you rate how your family/whānau is doing these days?” (Very well/well)</i>	90%	64%	0.21 (0.13, 0.33)	<.001

Personal wellbeing

To assess perceived life satisfaction, respondents were asked “Overall, how satisfied are you with life as a whole these days?” Response options ranged from one (very satisfied) to five (very dissatisfied). Overall, 80% (95% CI [77, 83%]) indicated that they were satisfied, or very satisfied, with their life as a whole. Respondents who met the criteria for EPDS-PND were less likely than those who did not meet the criteria to say that they were satisfied or very satisfied (see Table 7).

Respondents were also asked to indicate the extent to which they felt that the things they did in their life were worthwhile. Response options ranged from one (very worthwhile), to five (not at all worthwhile). Overall, 83% (95% CI [81, 86%]) indicated that they felt the things they did in their life were worthwhile or very worthwhile. Respondents who met the criteria for EPDS-PND were less likely than those who did not meet the criteria to say that they felt the things they did in their life were worthwhile or very worthwhile (see Table 7).

Table 7 shows the percentage of respondents in each group who responded positively to items relating to personal wellbeing. ORs, 95% CIs, and *p*-values are shown for respondents who met the criteria for EPDS-PND, compared with those who did not.

Table 7. Percentages of respondents who endorsed questions relating to personal wellbeing

Item	No depression	EPDS-PND (ref)	OR (95% CI)	<i>p</i> -value
<i>“Overall, how satisfied are you with life as a whole these days?” (Very satisfied/satisfied)</i>	87%	44%	0.11 (0.07, 0.18)	<.001
<i>“Overall, to what extent do you feel the things you do in your life are worthwhile?” (Very worthwhile/worthwhile)</i>	90%	49%	0.11 (0.07, 0.18)	<.001

HELP-SEEKING

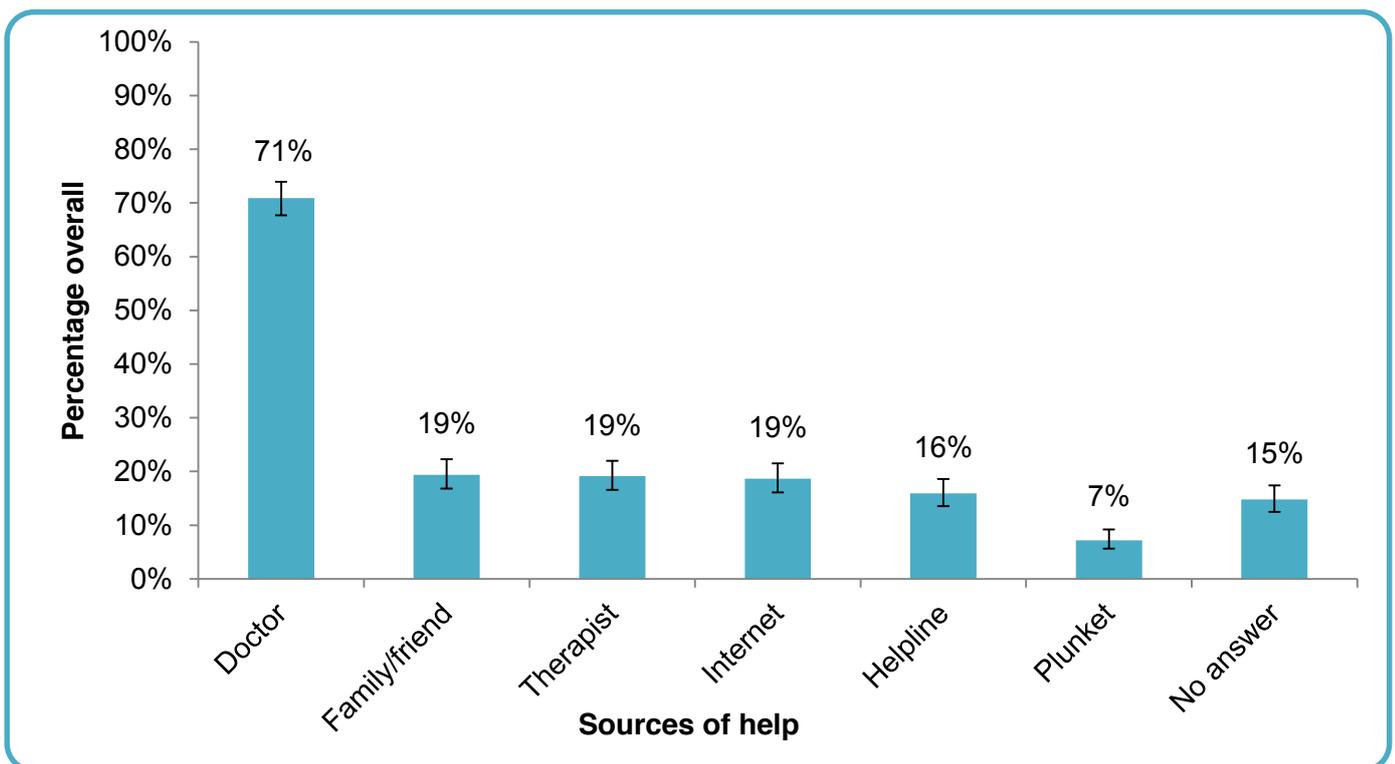
Recognising depression

Respondents were asked to indicate their level of agreement with the items “If a friend had depression, you would be able to recognise the signs and symptoms”, and “You would be able to recognise if you had depression”. Most respondents agreed they would be able to recognise depression in a friend (71%; 95% CI [67, 74%]) or in themselves (77%; 95% CI [74, 80%]); there were no differences between those who met the criteria for EPDS-PND and those who did not.

Knowing where to seek help

To assess respondent’s level of knowledge of where they could seek help for depression, the item “If you or someone you know has depression, do you know where you could go to get help?” had an open answer format, with multiple answers accepted. The majority (71%; 95% CI [68, 74%]) listed their doctor or general practitioner; 15% (95% CI [12, 17%]) did not provide an answer to this question, indicating either a refusal to answer or a lack of knowledge. Figure 6 shows potential sources of help reported by at least 5% of respondents.

Figure 6. Respondent’s answers to the question, “If you or someone you know has depression, do you know where you could get to get help?”



Note: Places listed by fewer than 5% of respondents are not shown

There were no between-group differences in the proportion of respondents citing particular sources of help, except that respondents who met the criteria for EPDS-PND (9%; 95% CI [5, 9%]) were less likely than those who did not meet the criteria (17%; 95% CI [14, 20%]) to list a helpline (OR = .47, 95% CI [0.23, 0.95], $p = .04$).

Help-seeking intentions

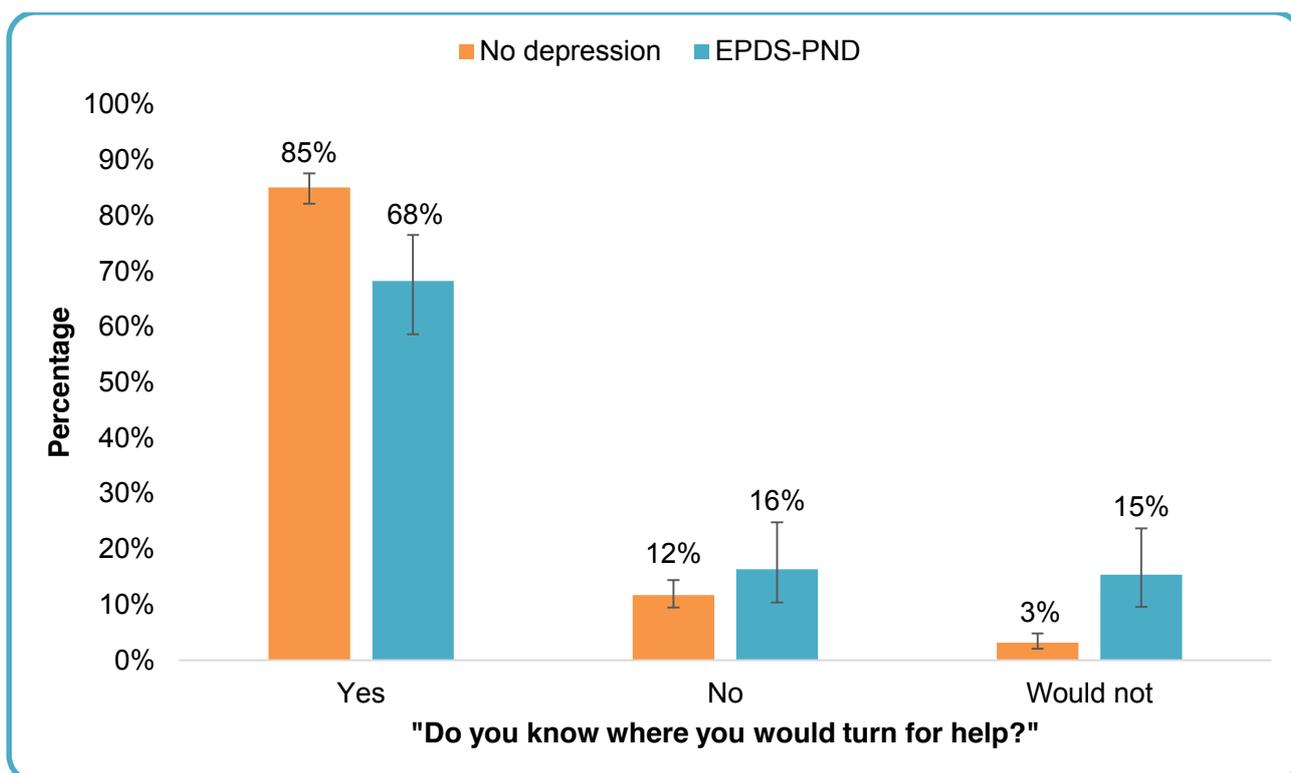
To assess intended help-seeking behaviour, respondents were asked “If you thought you might be experiencing depression, do you know who, or where, would you be most likely to turn for help?” Respondents could select from the options “yes”, “no”, or “nobody/nowhere/would not seek help”.

Overall, 82% (95% CI [79, 84%]) indicated they knew where they would most likely turn for help. Thirteen percent (95% CI [11, 16%]) indicated they did not know where they would go, and 5% (95% CI [4, 7%]) indicated they would not seek help.

Respondents who met the criteria for EPDS-PND were less likely than those who did not to say they knew where they would go for help (OR = .38, CI [0.24, 0.60], $p < .001$) and more likely to say that they would not seek help (OR = 5.57, CI [2.80, 11.07], $p < .001$).

Figure 7 displays the percentage of respondents in each group in relation to their answer to this item.

Figure 7. Percentages of respondents who met the criteria for EPDS-PND, and those who did not, in response to the question, “If you thought you might be experiencing depression, do you know who or where you would be most likely to turn for help?”

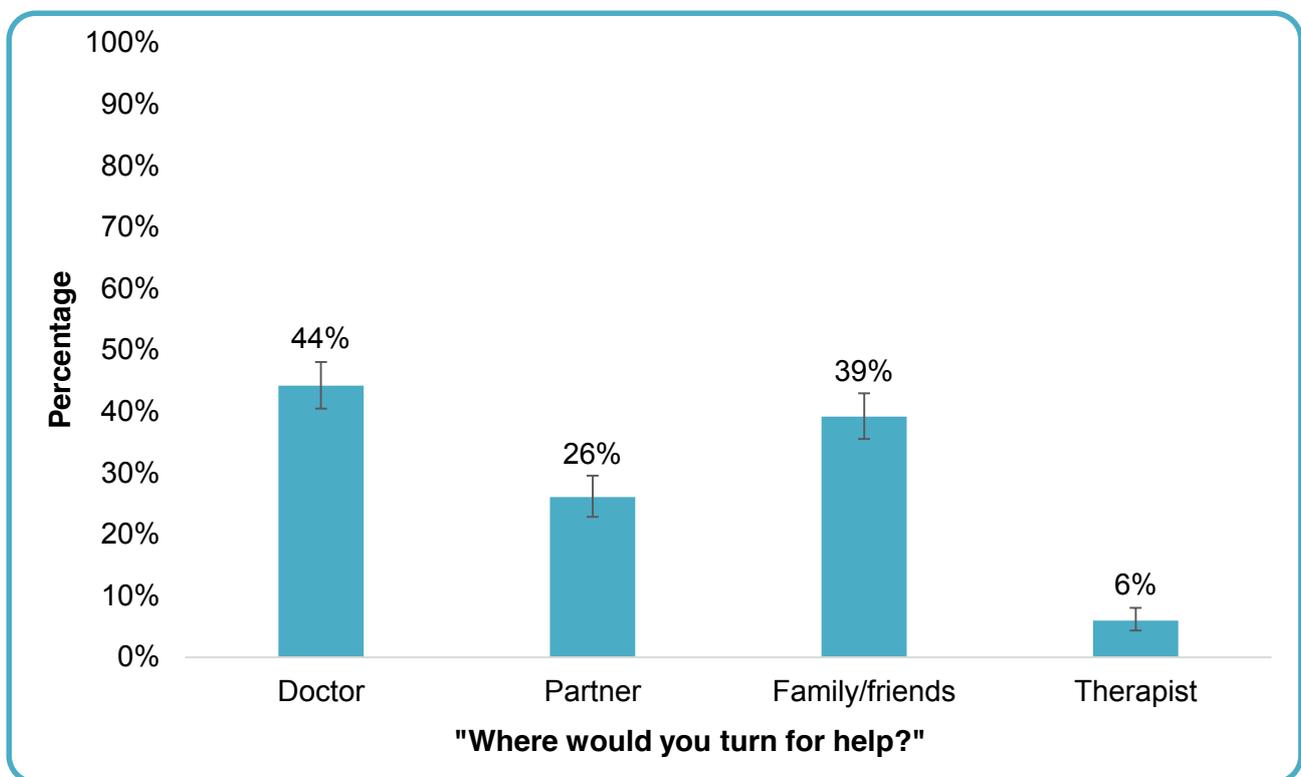


Respondents who said they knew who or where they would be most likely to turn for help were asked to provide one qualitative response to the item “Please say who or where would you be most likely to turn to for help?” Although it was intended that respondents would provide one answer only (ie, the ‘most likely’ help source), many respondents provided more than one answer. Therefore, this question was treated as a multi-response item.

Overall percentages of answers reported by at least 5% of respondents are displayed in Figure 8. The most common overall responses were the doctor, followed by family and friends, followed by their partner.

There were no significant between-group differences in answers to this question.

Figure 8. Most common answers to the question, “Who or where would you be most likely to turn to for help?”



Note: Places listed by fewer than 5% of respondents are not shown

RESULTS SUMMARY

PREVALENCE ESTIMATE

The initial analysis indicated that PND prevalence was higher in respondents with Asian ethnicity, lower household income, lower levels of formal education, and younger age. After adjusting for covariates, Asian ethnicity and low household income were the only significant predictors of EPDS-PND.

Table 8 provides an overview of the association between discrete socio-demographic factors and PND prevalence. Significant findings are in bold.

Table 8. Socio-demographic factors associated with PND prevalence, univariate and multivariate analysis

	Univariate			Multivariate		
	PND prevalence	OR (95% CI)	<i>p</i>	PND prevalence	OR (95% CI)	<i>p</i>
Ethnicity	Asian > NZ European/Other*	2.05 (1.10, 3.83)	.03	Asian > NZ European/Other*	2.08 (1.02, 4.25)	.04
Education	Secondary school > Degree*	1.90 (1.14, 3.17)	.02	Not sig.	1.35 (0.73, 2.49)	0.34
Income	Prevalence decreased as incomes rose	0.73 (0.64, 0.84)	<.001	Prevalence decreased as incomes rose	0.74 (0.63, 0.88)	.04
Mother's age (years)	15-24 > 35+*	2.45 (1.23, 4.68)	.01	Not sig.	1.65 (0.76, 3.60)	0.21

*=reference group, 'Not sig.' = not significant.

SOCIAL AND PSYCHOLOGICAL EXPERIENCES

This report found that for every question relating to the social and psychological experiences of new mothers, those meeting the criteria for EPDS-PND were more likely than those who did not meet the criteria to answer in a way that reflected problems across these areas.

Table 9 provides an overview of the differences in social and personal experiences for those who met the criteria for EPDS-PND, compared with those who did not.

Table 9. ORs, CIs, and *p*-values for responses by those who met the criteria for EPDS-PND (reference group = respondents who did not meet the criteria).

	Group most likely to answer 'yes', or endorse item.	OR (95% CI)	<i>p</i> -value
Last 12 months most difficult of life	EPDS-PND > No depression	4.24 (2.59, 6.96)	<.001
Can cope with everyday stress	No depression > EPDS-PND	0.08 (0.05, 0.12)	<.001
Make effort to see friends and family	No depression > EPDS-PND	0.34 (0.21, 0.53)	<.001
Can rely on friends/family for support	No depression > EPDS-PND	0.17 (0.11, 0.29)	<.001
Easy to find someone to help	No depression > EPDS-PND	0.31 (0.20, 0.48)	<.001
Easy to find somewhere to stay	No depression > EPDS-PND	0.28 (0.18, 0.43)	<.001
Feel isolated	EPDS-PND > No depression	31.88 (7.80, 30.32)	<.001
Felt excluded	EPDS-PND > No depression	4.40 (2.75, 7.04)	<.001
Family/whānau gets along	No depression > EPDS-PND	0.20 (0.12, 0.33)	<.001
Family/whānau doing well	No depression > EPDS-PND	0.21 (0.13, 0.33)	<.001
Satisfied with life	No depression > EPDS-PND	0.11 (0.07, 0.18)	<.001
Life is worthwhile	No depression > EPDS-PND	0.11 (0.07, 0.18)	<.001

HELP-SEEKING

When asked where they could go to seek help for depression, most respondents listed their doctor or general practitioner. Other places listed, in order of frequency, were: family and friends, a therapist, the internet, a helpline, and Plunket. There were few differences between respondents who met the criteria for EPDS-PND and those who did not in awareness of sources of help, other than for 'helpline', which was less likely to be listed by respondents who met the criteria for EPDS-PND than those who did not. However, when asked where they actually would go for help, respondents who met the criteria for EPDS-PND were less likely than those who did not to say they knew where they would go, and more likely to say that they would not seek help.

Table 10 provides an overview of significant comparisons between respondents who met the criteria for EPDS-PND, compared with those who did not, on items relating to help-seeking.

Table 10. Significant comparisons between respondents who met the criteria for EPDS-PND, and those who did not, on items relating to help-seeking.

	Group comparison	OR (95% CI)	<i>p</i> -value
List helpline as place where could seek help	No depression > EPDS-PND	0.47 (0.23, 0.95)	.04
Know where would seek help	No depression > EPDS-PND	0.38 (0.24, 0.60)	<.001
Would not seek help	EPDS-PND > No depression	5.57 (2.80, 11.07)	<.001

DISCUSSION

The purpose of this report was to use data from the NMMHS to provide an indication of PND prevalence in New Zealand and to gain insight into some of the socio-demographic differences of women who might be experiencing PND in New Zealand. It also sought to understand the experiences of respondents who met the criteria for EPDS-PND in the areas of social connectedness, family/whānau wellbeing, life difficulties, self-efficacy, personal wellbeing, and help-seeking.

KEY FINDINGS

EPDS-PND prevalence

When confounding variables were controlled, Asian ethnicity and a low household income emerged as the only variables significantly associated with higher rates of EPDS-PND. These findings are consistent with prior New Zealand research conducted in New Zealand (Gao et al., 2010; Waldie et al., 2015; Webster et al., 1994), although the higher PND rate amongst women of Pacific Island ethnicity identified in previous research (Waldie et al., 2015) was not observed in the current study, possibly due to the sample of Pacific Island women being too small to reliably infer prevalence for this group.

Social and life experiences

When asked about their social and life experiences, respondents meeting the criteria for EPDS-PND were more likely than those with no depression to have negative experiences in each of these areas. For example, respondents with EPDS-PND reported less social support and connectedness, less perceived coping self-efficacy, lower personal wellbeing, and more feelings of social isolation and exclusion.

These findings indicate that women experiencing PND encounter compounding risk factors, such as low general family wellbeing, and social isolation. Although the cross-sectional design of the NMMHS means that it is not possible to infer whether low social support precipitates PND or the other way around, it is important to note that previous research suggests the relationship is bidirectional (Koenders et al., 2015).

Help-seeking

The majority of respondents were able to list places where they could seek help for depression and there were no differences in awareness of potential help services between those with EPDS-PND and those with no depression. However, respondents with EPDS-PND were less likely to say they knew where they would actually go to seek help and more likely to say they would not seek help.

LIMITATIONS

Results from the current research must be considered in light of the following potential limitations. While the NMMHS was designed to gain insight into PND in a large nationwide sample of new mothers, the sample was not nationally-representative. This means that accurate prevalence rates

for Pacific Island respondents could not be reliably estimated, due to a low sample size in this group.¹ Further, the online nature of the survey means that some participants may have been excluded if they did not have access to a computer and internet connection, particularly if they were in lower socio-demographic categories. Note however, that the NMMHS included an adequate sample of respondents from lower education and income brackets. Finally, the NMMHS assessed respondents over a wide postnatal period: women were eligible to participate if they had given birth at any point over the past two years. Because PND prevalence is proposed to peak at between six and 12 weeks postpartum (Leahy-Warren & McCarthy, 2007), this wide time frame may have captured women who might have had PND initially but since recovered or women who were experiencing distress not related to the postpartum period.

CONCLUSION

This report provides useful insight into some of the characteristics and experiences of women in New Zealand who might be experiencing PND. However, its cross-sectional nature means that it is not possible to infer causality between PND and the socio-demographic characteristics and life experiences of respondents. Indeed, the relationships between some of these variables are likely to be bi-directional. Furthermore, the small number of respondents identifying as Pacific limited the ability to understand PND in that population. To address these issues, future research could consider implementing longitudinal designs with nationally-representative samples, to delineate the relationship between socio-demographic characteristics, difficult life experiences, and PND.

¹ For more information on postnatal depression in Pacific Island women living in New Zealand, readers are referred to prior New Zealand research by Abbott and Williams (2006), which includes a large sample of Pacific Island mothers.

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REFERENCES

- Abbott, M. W., & Williams, M. M. (2006). Postnatal depressive symptoms among Pacific mothers in Auckland: prevalence and risk factors. *Australian & New Zealand Journal of Psychiatry*, *40*(3), 230–238.
- Bewley, C. (1999). Postnatal depression. *Nursing Standard*, *13*(16), 49–54; quiz 55–6.
- Carter, F. A., Carter, J. D., Luty, S. E., Wilson, D. A., Frampton, C. M. A., & Joyce, P. R. (2005). Screening and treatment for depression during pregnancy: a cautionary note. *Australian & New Zealand Journal of Psychiatry*, *39*(4), 255–261.
- Cox, J. L., Holden, J. M., & Sagovsky, R. (1987). Detection of postnatal depression. Development of the 10-item Edinburgh Postnatal Depression Scale. *The British Journal of Psychiatry*, *150*(6), 782–786.
- Gao, W., Paterson, J., Abbott, M., Carter, S., & Iusitini, L. (2007). Maternal mental health and child behaviour problems at 2 years: findings from the Pacific Islands Families Study. *Australian & New Zealand Journal of Psychiatry*, *41*(11), 885–895.
- Gao, W., Paterson, J., Abbott, M., Carter, S., & Iusitini, L. (2010). Pacific Islands Families Study: Intimate Partner Violence and Postnatal Depression. *Journal of Immigrant and Minority Health*, *12*(2), 242–248. <http://doi.org/10.1007/s10903-008-9190-y>
- Goodman, J. H. (2004). Postpartum depression beyond the early postpartum period. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, *33*(4), 410–420.
- Koenders, M. A., Giltay, E. J., Hoencamp, E., Elzinga, B. M., Spinhoven, P., & Spijker, A. T. (2015). The bidirectional impact of perceived and enacted support on mood in bipolar outpatients: A two-year prospective study. *Comprehensive Psychiatry*, *60*, 59–67. <http://doi.org/10.1016/j.comppsy.2015.03.009>
- Leahy-Warren, P., & McCarthy, G. (2007). Postnatal Depression: Prevalence, Mothers' Perspectives, and Treatments. *Archives of Psychiatric Nursing*, *21*(2), 91–100. <http://doi.org/10.1016/j.apnu.2006.10.006>
- Lussier, V., David, H., Saucier, J.F., & Borgeat, F. M. (1996). Self-rating assessment of postnatal depression: A comparison of the Beck depression inventory and the Edinburgh postnatal depression scale. *Pre-and Peri-Natal Psychology Journal*, *11*(2), 81.

- McGill, H., Burrows, V., Holland, L., Langer, H., & Sweet, M. (1995). Postnatal depression: a Christchurch study. *The New Zealand Medical Journal*, *108*(999), 162–165.
- Ministry of Health. (2004). Ethnicity data protocols for the health and disability sector.
- Thio, I. M., Browne, M. A. O., Coverdale, J. H., & Argyle, N. (2006). Postnatal depressive symptoms go largely untreated: A probability study in urban New Zealand. *Social Psychiatry and Psychiatric Epidemiology*, *41*(10), 814–818. <http://doi.org/10.1007/s00127-006-0095-6>
- Waldie, K. E., Peterson, E. R., D'Souza, S., Underwood, L., Pryor, J. E., Carr, P. A., ... Morton, S. M. B. (2015). Depression symptoms during pregnancy: Evidence from Growing Up in New Zealand. *Journal of Affective Disorders*, *186*, 66–73. <http://doi.org/10.1016/j.jad.2015.06.009>
- Webster, M. L., Thompson, J. M., Mitchell, E. A., & Werry, J. S. (1994). Postnatal depression in a community cohort. *Australian and New Zealand Journal of Psychiatry*, *28*(1), 42–49.