## UNIVERSITYOF BIRMINGHAM

# University of Birmingham Research at Birmingham

## Unmet needs of women with GDM

Plant, Nicola; Sumilo, Dana; Chapman, Rachel; Webber, Jonathan; Saravanan, Ponnusamy; Nirantharakumar, Krishnarajah

10.1093/pubmed/fdz172

License:

Other (please specify with Rights Statement)

Document Version Peer reviewed version

Citation for published version (Harvard):

Plant, N, Sumilo, D, Chapman, R, Webber, J, Saravanan, P & Nirantharakumar, K 2019, 'Unmet needs of women with GDM: a health needs assessment in Sandwell, West Midlands', Journal of Public Health. https://doi.org/10.1093/pubmed/fdz172

#### Link to publication on Research at Birmingham portal

### **Publisher Rights Statement:**

This is a pre-copyedited, author-produced version of an article accepted for publication in Journal of Public Health following peer review. The version of record Nicola Plant, Dana Sumilo, Rachel Chapman, Jonathan Webber, Ponnusamy Saravanan, Krishnarajah Nirantharakumar, Unmet needs of women with GDM: a health needs assessment in Sandwell, West Midlands, Journal of Public Health, , fdz172, https://doi.org/10.1093/pubmed/fdz172 is available online at:

https://academic.oup.com/jpubhealth/advance-article/doi/10.1093/pubmed/fdz172/5671800

10.1093/pubmed/fdz172

General rights

Unless a licence is specified above, all rights (including copyright and moral rights) in this document are retained by the authors and/or the copyright holders. The express permission of the copyright holder must be obtained for any use of this material other than for purposes

- •Users may freely distribute the URL that is used to identify this publication.
- •Users may download and/or print one copy of the publication from the University of Birmingham research portal for the purpose of private study or non-commercial research.
  •User may use extracts from the document in line with the concept of 'fair dealing' under the Copyright, Designs and Patents Act 1988 (?)
- •Users may not further distribute the material nor use it for the purposes of commercial gain.

Where a licence is displayed above, please note the terms and conditions of the licence govern your use of this document.

When citing, please reference the published version.

Take down policy

While the University of Birmingham exercises care and attention in making items available there are rare occasions when an item has been uploaded in error or has been deemed to be commercially or otherwise sensitive.

If you believe that this is the case for this document, please contact UBIRA@lists.bham.ac.uk providing details and we will remove access to the work immediately and investigate.

Download date: 30. Apr. 2024

Table 2. Unadjusted and Adjusted Odds Ratios for developing gestational diabetes (GDM).

Age Group	Variables		Unadjusted	Р	Adjusted Odds	Р
20-24years   1.71 (0.77-3.82)   0.18   1.35 (0.56-3.22)   0.49     255-29years   3.07 (1.43-6.61)   0.004   1.91 (0.83-4.43)   0.19     30-34years   5.23 (2.92-13.32)   <0.001   3.78 (1.64-8.67)   0.002     \$≥ 40 years   15.48 (6.91-34.66)   <0.001   10.20 (4.23-24.63)   <0.001     \$≥ 40 years   15.48 (6.91-34.66)   <0.001   10.20 (4.23-24.63)   <0.001     \$≥ 40 years   15.48 (6.91-34.66)   <0.001   10.20 (4.23-24.63)   <0.001     \$≥ 40 years   15.48 (6.91-34.66)   <0.001   10.20 (4.23-24.63)   <0.001     \$≥ 40 years   15.48 (6.91-34.66)   <0.001   10.20 (4.23-24.63)   <0.001     \$≥ 40 years   1.43 (0.19-10.83)   0.72   1.99 (0.25-15.70)   0.51     \$≥ 40 years   1.43 (0.19-10.83)   0.72   1.99 (0.25-15.70)   0.51     \$≥ 40 years   1.25 (0.85-1.84)   0.24   1.13 (0.75-1.72)   0.54     \$≥ 40 years   1.25 (0.85-1.84)   0.24   1.13 (0.75-1.72)   0.54     \$≥ 40 years   1.25 (0.85-1.84)   0.24   1.13 (0.75-1.72)   0.54     \$≥ 40 years   1.24 (1.60-3.66)   <0.001   1.21 (0.73-1.98)   0.44     \$≥ 40 years   1.24 (1.60-3.66)   <0.001   1.21 (0.73-1.98)   0.44     \$≥ 40 years   1.24 (1.60-3.66)   <0.001   1.21 (0.73-1.98)   0.44     \$≥ 40 years   1.43 (0.61-3.35)   0.39   1.23 (0.51-2.97)   0.63     \$≥ 40 years   1.43 (0.61-3.35)   0.39   1.23 (0.51-2.97)   0.63     \$≥ 40 years   1.43 (0.61-3.35)   0.39   1.23 (0.51-2.97)   0.63     \$≥ 40 years   1.43 (0.61-3.35)   0.39   1.23 (0.51-2.97)   0.63     \$≥ 40 years   1.54 (0.47-5.01)   0.47   1.25 (0.37-4.26)   0.001     \$≥ 40 years   1.54 (0.47-5.01)   0.47   1.25 (0.37-4.26)   0.001     \$≥ 40 years   1.54 (0.47-5.01)   0.47   1.25 (0.37-4.26)   0.001     \$≥ 40 years   1.54 (0.47-5.01)   0.47   1.25 (0.37-4.26)   0.001     \$≥ 40 years   1.54 (0.47-5.01)   0.47   1.25 (0.37-4.26)   0.001     \$≥ 40 years   1.54 (0.47-5.01)   0.47   1.25 (0.37-4.26)   0.001     \$≥ 40 years   1.54 (0.47-5.01)   0.47   1.25 (0.37-4.26)   0.001     \$≥ 40 years   1.54 (0.47-5.01)   0.47   1.25 (0.37-4.26)   0.001     \$≥ 40 years   1.54 (0.47-5.01)   0.47   1.38 (0.53-3.59)   0.001     \$≥ 40 yea				Value	Ratio*(95%CI)	Value
25-29years   3.07 (1.43-6.61)   0.004   1.91 (0.83-4.43)   0.12	Age Group	< 20years				
Sandard   Sand					1.35 (0.56-3.22)	
Sandard   San					, ,	
Ethnicity   White British   1.00	-		` ,		` ,	
Ethnicity	-				` '	
Irish				<0.001		<0.001
White Other	Ethnicity					
African   2.42 (1.60-3.66)   <0.001   1.21 (0.73-1.98)   0.44			·			
Caribbean   1.04 (0.59-1.81)   0.88   0.82 (0.45-1.51)   0.54     Black Other   1.43 (0.61-3.35)   0.39   1.23 (0.51-2.97)   0.63     Bangladeshi   5.57 (3.96-7.84)   <0.001   2.82 (2.00-3.96)   <0.001     Pakistani   3.91 (2.92-5.23)   <0.001   2.82 (2.00-3.96)   <0.001     Indian   3.16 (2.42-4.14)   <0.001   2.16 (1.57-2.96)   <0.001     Chinese   1.54 (0.47-5.01)   0.47   1.25 (0.37-4.26)   0.71     Asian Other   3.36 (1.97-5.71)   <0.001   2.38 (1.33-4.25)   0.003     White and Black   3.19 (1.11-9.17)   0.03   4.00 (1.16-13.71)   0.027     White and Black   Caribbean   Mixed Other   2.26 (1.02-5.02)   0.04   1.38 (0.53-3.59)   0.499     Any other ethnic   2.92 (2.05-4.16)   <0.001   2.10 (1.40-3.16)   <0.001     Quintile   4   0.82 (0.53-1.25)   0.36   0.87 (0.54-1.40)   0.58     Antenatal Booking   0.96 (0.67-1.36)   0.82   0.86 (0.58-1.27)   0.46     Antenatal Booking   Overweight (25.0   2.9.9 (0.67-1.36)   0.82   0.80 (0.58-1.27)   0.46     Antenatal Booking   Overweight (25.0   2.9.9 (0.67-1.36)   0.001   1.60 (1.24-2.08)   <0.001     Smoker Pre No   1.00   1.00   1.00     Smoker at No   1.00   1.00   1.00     Pakistani   Normal or   1.00   1.00   1.00     Smoker at No   1.00   0.83 (0.51-1.44)   0.45     Pregnancy   No   1.00   0.83 (0.51-1.45)   0.68     Pregnancy   No   1.00   0.83 (0.51-1.45)   0.68     Pregnancy   No   1.00   0.83 (0.51-1.45)   0.68     Pregnancy   Pregnancy   No   1.00   0.83 (0.51-1.45)   0.68     Pregnancy   No   1.00   0.005   0.001   0.005   0.001     Pregnancy   No   1.00   0.005   0.001   0.005   0.001     Pregnancy   No   0.48 (0.35-0.65)   0.001   0.005   0.001   0.005   0.001     Pregnancy   No   0.001   0.005   0.006   0.006   0.006   0.006   0.006     And the present   0.005   0.005   0.006   0.006   0.006   0	-		· · · · · · · · · · · · · · · · · · ·		, ,	
Black Other   1.43 (0.61-3.35)   0.39   1.23 (0.51-2.97)   0.63     Bangladeshi   5.57 (3.96-7.84)   <0.001   4.40 (2.95-6.54)   <0.001     Pakistani   3.91 (2.92-5.23)   <0.001   2.82 (2.00-3.96)   <0.001     Indian   3.16 (2.42-4.14)   <0.001   2.16 (1.57-2.96)   <0.001     Chinese   1.54 (0.47-5.01)   0.47   1.25 (0.37-4.26)   0.71     Asian Other   3.36 (1.97-5.71)   <0.001   2.38 (1.33-4.25)   0.003     White and Asian   3.19 (1.11-9.17)   0.03   4.00 (1.16-13.71)   0.027     White and Black   5.92 (2.55-13.72)   <0.001   3.17 (1.30-7.72)   0.011     White and Black   Caribbean   Mixed Other   2.26 (1.02-5.02)   0.04   0.41 (0.12-1.34)   0.143     Caribbean   Mixed Other   2.292 (2.05-4.16)   <0.001   2.10 (1.40-3.16)   <0.001     Group   Mixed Other   2.92 (2.05-4.16)   <0.001   2.10 (1.40-3.16)   <0.001     Group   Mixed Other   2.92 (2.05-4.16)   <0.001   2.10 (1.40-3.16)   <0.001     Group   Mixed Other   2.92 (2.05-4.16)   <0.001   2.10 (1.40-3.16)   <0.001     Group   Mixed Other   2.92 (2.05-4.16)   <0.001   2.10 (1.40-3.16)   <0.001     Group   Mixed Other   2.92 (2.05-4.16)   <0.001   2.10 (1.40-3.16)   <0.001     Group   Mixed Other   2.92 (2.05-4.16)   <0.001   2.10 (1.40-3.16)   <0.001     Group   Mixed Other   2.92 (2.05-4.16)   <0.001   2.10 (1.40-3.16)   <0.001     Group   Mixed Other   2.92 (2.05-4.16)   <0.001   2.10 (1.40-3.16)   <0.001     Group   Mixed Other   2.92 (2.05-4.16)   <0.001   0.93 (0.60-1.44)   <0.68   <0.68 (0.58-1.27)   <0.68   <0.68 (0.58-1.27)   <0.68   <0.68 (0.58-1.27)   <0.68   <0.68 (0.58-1.27)   <0.68   <0.68 (0.58-1.27)   <0.001   <0.68   <0.68 (0.58-1.27)   <0.001   <0.68   <0.68 (0.58-1.27)   <0.001   <0.68   <0.68 (0.58-1.27)   <0.001   <0.68   <0.68 (0.58-1.27)   <0.001   <0.68   <0.68 (0.58-1.27)   <0.001   <0.68   <0.68 (0.58-1.27)   <0.001   <0.68   <0.68 (0.58-1.27)   <0.001   <0.68   <0.68 (0.58-1.27)   <0.001   <0.68   <0.68 (0.58-1.27)   <0.001   <0.68   <0.68 (0.58-1.27)   <0.001   <0.68   <0.68 (0.58-1.27)   <0.001   <0.68   <0.68 (0.58-1.27)   <0.00	-		· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	
Bangladeshi   5.57 (3.96-7.84)   <0.001   4.40 (2.95-6.54)   <0.001   Pakistani   3.91 (2.92-5.23)   <0.001   2.82 (2.00-3.96)   <0.001			· · · · · · · · · · · · · · · · · · ·		·	
Pakistani   3.91 (2.92-5.23)   <0.001   2.82 (2.00-3.96)   <0.001     Indian   3.16 (2.42-4.14)   <0.001   2.16 (1.57-2.96)   <0.001   Chinese   1.54 (0.47-5.01)   0.47   1.25 (0.37-4.26)   0.71     Asian Other   3.36 (1.97-5.71)   <0.001   2.38 (1.33-4.25)   0.003     White and Asian   3.19 (1.11-9.17)   0.03   4.00 (1.16-13.71)   0.027   White and Black   African   White and Black   Caribbean   Mixed Other   2.26 (1.02-5.02)   0.04   0.41 (0.12-1.34)   0.143   0.143     Caribbean   Mixed Other   2.26 (1.02-5.02)   0.04   1.38 (0.53-3.59)   0.499   Any other ethnic   group   2.92 (2.05-4.16)   <0.001   2.10 (1.40-3.16)   <0.001     4.001   4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001   4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001   4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001   4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001   4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001   4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001   4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001   4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001     4.001   4			· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	
Indian			· · · · · · · · · · · · · · · · · · ·		·	
Chinese			· · · · · · · · · · · · · · · · · · ·		, ,	
Asian Other   3.36 (1.97-5.71)   <0.001   2.38 (1.33-4.25)   0.003   White and Asian   3.19 (1.11-9.17)   0.03   4.00 (1.16-13.71)   0.027   White and Black   5.92 (2.55-13.72)   <0.001   3.17 (1.30-7.72)   0.011   African   White and Black   Caribbean   Mixed Other   2.26 (1.02-5.02)   0.04   1.38 (0.53-3.59)   0.499   Any other ethnic   2.92 (2.05-4.16)   <0.001   2.10 (1.40-3.16)   <0.001   group			· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	
White and Asian   3.19 (1.11-9.17)   0.03   4.00 (1.16-13.71)   0.027			1.54 (0.47-5.01)		·	
White and Black African   S.92 (2.55-13.72)   <0.001   3.17 (1.30-7.72)   0.011		Asian Other	3.36 (1.97-5.71)	<0.001	, ,	0.003
African   White and Black   Caribbean   Caribbean   Caribbean   Caribbean   Caribbean   Mixed Other   Caribbean		White and Asian		0.03	4.00 (1.16-13.71)	0.027
White and Black Caribbean   0.46 (0.17-1.28)   0.14   0.41 (0.12-1.34)   0.143			5.92 (2.55-13.72)	<0.001	3.17 (1.30-7.72)	0.011
Mixed Other         2.26 (1.02-5.02)         0.04         1.38 (0.53-3.59)         0.499           Any other ethnic group         2.92 (2.05-4.16)         <0.001		White and Black	0.46 (0.17-1.28)	0.14	0.41 (0.12-1.34)	0.143
Any other ethnic group			2.26 (1.02-5.02)	0.04	1.38 (0.53-3.59)	0.499
MD National Quintile			· · · · · · · · · · · · · · · · · · ·		·	
IMD National Quintile         5 (least deprived)         1.00         1.00           Quintile         4         0.82 (0.53-1.25)         0.36         0.87 (0.54-1.40)         0.58           3         0.77 (0.52-1.13)         0.19         0.91 (0.59-1.41)         0.68           2         0.96 (0.67-1.36)         0.82         0.86 (0.58-1.27)         0.46           1 (most deprived)         1.17 (0.80-1.72)         0.40         0.93 (0.60-1.44)         0.76           BMI at Antenatal Booking         Normal or underweight (<25.0 kg/m²)		-	2.02 (2.00 1.10)	10.001	2.10 (1.10 0.10)	10.001
Quintile         4         0.82 (0.53-1.25)         0.36         0.87 (0.54-1.40)         0.58           3         0.77 (0.52-1.13)         0.19         0.91 (0.59-1.41)         0.68           2         0.96 (0.67-1.36)         0.82         0.86 (0.58-1.27)         0.46           BMI at Antenatal Booking         Normal or underweight (<25.0 kg/m²)	IMD National	<u> </u>	1.00		1.00	
BMI at Antenatal Booking       Normal or Lange (2.5.0-29.9 kg/m²)       1.96 (1.53-2.51)       <0.001       0.91 (0.59-1.41)       0.68         2 0.96 (0.67-1.36)       0.82       0.86 (0.58-1.27)       0.46         1 (most deprived)       1.17 (0.80-1.72)       0.40       0.93 (0.60-1.44)       0.76         BMI at Antenatal Booking       Normal or underweight (<25.0 kg/m²)		· · · · · · · · · · · · · · · · · · ·		0.36		0.58
BMI at Antenatal Booking       Normal or underweight (<25.0 ± 29.9 kg/m²)       1.96 (1.53-2.51)       <0.001       1.60 (1.24-2.08)       <0.001         Smoker Prepregnancy       No       1.00       1.00       1.00       2.39 (1.84-3.11)       <0.001			·		·	
BMI at Antenatal Booking         Normal or underweight (<25.0 bg/sg/m²)         1.96 (1.53-2.51)         <0.001         1.60 (1.24-2.08)         <0.001           Smoker Pre-Pregnancy         No         1.00         1.00         1.60 (1.24-2.08)         <0.001	-		· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	
BMI at Antenatal Booking         Normal or underweight (<25.0 kg/m²)         1.00	-		·			
Antenatal Booking         underweight (<25.0 kg/m²)         1.96 (1.53-2.51)         <0.001         1.60 (1.24-2.08)         <0.001           29.9 kg/m²)         Obese (≥ 30.0 kg/m²)         2.51 (1.97-3.21)         <0.001	BMI at		, ,		, ,	
Booking         kg/m²)         1.96 (1.53-2.51)         <0.001         1.60 (1.24-2.08)         <0.001           29.9 kg/m²)         Obese (≥ 30.0 kg/m²)         2.51 (1.97-3.21)         <0.001						
Overweight (25.0-29.9 kg/m²)         1.96 (1.53-2.51)         <0.001         1.60 (1.24-2.08)         <0.001           Obese (≥ 30.0 kg/m²)         2.51 (1.97-3.21)         <0.001						
29.9 kg/m²)       Obese (≥ 30.0 kg/m²)     2.51 (1.97-3.21)     <0.001     2.39 (1.84-3.11)     <0.001       Smoker Pre-Pregnancy     No     1.00     1.00     1.00       Smoker at Booking     No     1.00     1.00     1.00       Pregnancy Related     No     1.00     0.48 (0.35-0.65)     <0.001		<u> </u>	1.96 (1.53-2.51)	<0.001	1.60 (1.24-2.08)	<0.001
Obese (≥ 30.0 kg/m²)         2.51 (1.97-3.21)         <0.001         2.39 (1.84-3.11)         <0.001           Smoker Prepregnancy         No         1.00         1.00         1.00         1.00         0.63           Smoker at Booking         No         1.00         1.00         1.00         1.00         0.45           Pregnancy Related         No         1.00         1.00         1.00         0.45         0.45         0.68			·		, , , , , , , , , , , , , , , , , , ,	
Smoker Pre-Pregnancy         No         1.00 <td></td> <td></td> <td>2.51 (1.97-3.21)</td> <td>&lt;0.001</td> <td>2.39 (1.84-3.11)</td> <td>&lt;0.001</td>			2.51 (1.97-3.21)	<0.001	2.39 (1.84-3.11)	<0.001
Pregnancy         Yes         0.49 (0.38-0.62)         <0.001         1.10 (0.73-1.66)         0.63           Smoker at Booking         No         1.00<						
Smoker at Booking         No         1.00		No				
Booking         Yes         0.48 (0.35-0.65)         <0.001         0.83 (0.51-1.34)         0.45           Pregnancy         No         1.00         1.00         1.00           Related         Yes         1.30 (0.99-1.71)         0.055         1.06 (0.78-1.45)         0.68	Pregnancy	Yes	0.49 (0.38-0.62)	<0.001	1.10 (0.73-1.66)	0.63
Pregnancy         No         1.00         1.00           Related         Yes         1.30 (0.99-1.71)         0.055         1.06 (0.78-1.45)         0.68	Smoker at	No	1.00		1.00	
Related Yes 1.30 (0.99-1.71) 0.055 1.06 (0.78-1.45) 0.68	Booking	Yes	0.48 (0.35-0.65)	<0.001	0.83 (0.51-1.34)	0.45
	Pregnancy	No			1.00	
Hypertension	Related	Yes	1.30 (0.99-1.71)	0.055	1.06 (0.78-1.45)	0.68
	Hypertension					

<sup>\*</sup>Adjusted for all variables