



Original article

Identification Matters: How Data Sharing Affects Pupil Honesty and Engagement in Universal School Well-Being Assessments

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A B S T R A C T

Purpose: Universal well-being assessments in schools may support early identification of pupils needing mental health support. However, little is known about how privacy and confidentiality concerns influence pupils' acceptability of assessments and willingness to engage authentically. This study examined how hypothetical identification, where responses are linked to pupils and shared with key stakeholders, affects pupils' anticipated honesty and engagement, and whether known help-seeking barriers predict negative responses.

Methods: Cross-sectional data were collected from 12,377 primary (ages 8–10) and secondary pupils (ages 11–17) across 55 schools in England. Pupils reported whether their responses would change if identifiable and shared with school staff, parents/guardians, or external professionals. Responses indicating reduced honesty or likelihood of disengagement were coded as negative. Predictors were examined using mixed-effects logistic regression models, including demographics, school connectedness, and mental well-being.

Results: Identification and data sharing influenced pupils' anticipated engagement, particularly in secondary schools. Identification by school staff elicited the highest proportion of negative responses in both phases, whereas external professionals elicited the fewest. Most primary pupils reported they would respond authentically, while a larger proportion of secondary pupils indicated they would respond less honestly or disengage when responses were identifiable and shared. Across primary and secondary samples, low well-being, low school connectedness, and being female were associated with greater likelihood of negative response.

Discussion: Pupils' anticipated engagement with well-being assessments is shaped by who accesses their data, with marked developmental differences. Strengthening trust, privacy, and connectedness, and supporting pupils' autonomy, may improve the acceptability and response accuracy.

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IMPLICATIONS AND
CONTRIBUTION

This study shows that pupils' willingness to engage authentically with school-based well-being assessments depends on who they believe will access their data. Identification by school staff or parents was associated with reduced honesty or disengagement, particularly in secondary pupils. Designing systems that embed trust, confidentiality, and autonomy is essential for acceptability.

Conflicts of Interest: The authors have no conflicts of interest to disclose.

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Most young people who experience mental health difficulties do not receive appropriate interventions, with demand outstripping provision both in the United Kingdom [1,2] and internationally [3,4]. This reflects scarce resources and crisis-led

systems that ration access on the basis of severity [5,6], often missing opportunities for prevention. Clinical staging suggests mental disorders emerge from distress and subthreshold symptoms in youth [7], yet service models focus on established disorders with early intervention frequently underused [8].

Universal mental health screening in schools (UMHS) offers a population-level approach to early detection through systematic assessment of mental health and well-being, increasing the likelihood of emerging needs being identified [9,10]. Screening during adolescence has shown promising effects for early detection and treatment uptake for depression [11], although evidence for other disorders and real-world implementation at scale remains limited [12,13].

Despite potential advantages of universal approaches, successful implementation depends on pupils engaging authentically with assessments. Emerging evidence highlights that concerns about privacy, confidentiality, and data sharing, influence how young people engage with UMHS [14]. These concerns mirror broader social, cultural, and developmental influences [15,16] and could be amplified in school contexts, where pupils interact daily with those who may access their information. Sonesson et al. [17] found that many secondary pupils reported privacy-related concerns when completing anonymous mental health measures, with some indicating these affected response accuracy. However, this work focused on anonymous participation among adolescents and did not examine how pupils, including primary-aged pupils, anticipate changing responses when assessments are identifiable and shared with key stakeholders.

Understanding these influences is important for the acceptability and feasibility of UMHS where pupil-reported data inform support pathways. If some groups feel less comfortable with data sharing, screening may be less effective and may unintentionally reproduce inequalities. Although identification and data sharing are core components of school-based screening, pupils' perspectives—particularly in primary school—remain underexplored [14].

This study examines how hypothetical identification and data sharing with key stakeholders (i.e., where responses could be linked to pupils and shared with specific individuals or groups) is associated with pupils' anticipated honesty and engagement across school phases. We also investigate how known help-seeking factors—such as sex, age, connectedness, and well-being—relate to negative responses to identification.

The following research questions were addressed:

RQ1: Do pupils report that potential identification would lead them to change how they would respond?

RQ2: Do pupils report that their responses would differ depending on who their data are shared with (e.g. school staff, parents or guardians, external professionals)?

RQ3: Are factors previously associated with barriers to help-seeking—such as age or school year, gender, socioeconomic status, well-being, and school connectedness—associated with pupils's anticipated responses to identification by different stakeholder groups?

Methods

Design

Cross-sectional data were collected during the spring-summer 2023 as part of an ongoing well-being survey in the

West Midlands, United Kingdom [18]. Ethical approval was granted by the University of Warwick (BSREC: 78/20–21). All pupils in participating schools within the relevant year groups were eligible; however, participation was determined at the school level, with schools opting into the census and deciding which years groups to include, resulting in a naturalistic, nonrandom sample; no additional exclusion criteria were applied beyond nonparticipation. Participation operated on an opt-out basis, with small-number suppression (ethnicity counts below 5) applied to reduce reidentification risk.

Participants

Fifty-five schools participated (33 primary, 22 secondary) from the West Midlands, England (predominantly Birmingham) with a relatively high proportion of pupils eligible for free school meals. Of 26,122 eligible pupils, 12,377 completed assessments (47% participation).

Primary sample. Of 5,004 eligible pupils, 3,892 participated (77%). Pupils were drawn from years 4–6 (8–10 years old); 48% were male, 46% female (6% missing). Reported ethnicity was 63% White, 23% Asian, 4% Black, 7% Mixed, and 2% Other; 33% received free school meals.

Secondary sample. Of 21,118 eligible pupils, 8,485 participated (40% participation). Pupils were drawn from years 7–13 (11–17 year olds); 48% were male, 52% female. Reported ethnicity 38% White, 40% Asian, 10% Black, 9% Mixed, and 3% Other; 28% received free school meals.

Overall, the sample reflects the demographic and socioeconomic profile of the participating schools, with the proportion of pupils eligible for free school meals (28%–33%) being comparable to, or slightly higher than, the West Midlands average (27.9%) [19]. Some differences in ethnic composition relative to regional data were also observed, which should be considered when interpreting generalizability.

Procedure

Between January and July 2023, schools registered via a digital portal to upload pupil demographic data. Survey responses were linked to demographic data using Unique Pupil Numbers, which were subsequently replaced with hashed identifiers. The research team did not receive information that enabled pupils to be identified; reidentification would have required school-held information and was not permitted under governance arrangements. Pupils were informed that their responses would not be identifiable or shared at an individual level with schools or parents. Parents received opt-out information and teachers briefed pupils on confidentiality and voluntary participation. Pupils could also opt out digitally at survey start. Opt-out rates were low (primary: 0.4%, secondary: 1.5%, although this reflects only pupils who accessed the survey. Surveys were completed during the school day, and schools later received anonymized aggregated results.

Measures

Demographics. Schools provided pupils' school year, administrative sex (as recorded in school records), ethnicity, and free school meal status.

Stakeholder identification group. Pupils were told their responses were nonidentifiable (see [Supplementary Data S1](#)) then asked whether they would change their answer if they became identifiable and were shared with: 1) school staff; 2) an external professional (likely a mental health professional); or 3) their parent/guardian. If pupils said “yes,” they were asked how they would respond: “more likely to answer honestly,” “less likely to answer honestly,” “less likely to take part,” or “unsure.” Pupils indicating “less likely to answer honestly” or “less likely to take part” were coded as reporting a *negative anticipated response*.

Mental well-being. Primary pupils completed the Stirling Children’s Wellbeing Scale [20], with locally normed low well-being defined as <35 and scale benchmark of <30 as indicative of mental health difficulties (i.e., lower levels of mental well-being) [21]. Secondary pupils completed the Warwick and Edinburgh Mental Wellbeing Scale (WEMWBS) [22], with locally normed low well-being defined as <36, which was more stringent than the published benchmark of <44 associated with elevated risk of depression or psychological distress [23]. These thresholds reflect published benchmark categories for well-being scales and should not be interpreted as indicative of risk rather than clinical diagnosis. Both measures are validated and suitable assessments for well-being screening in school populations [21].

School connectedness. Assessed using four adapted items capturing belonging, engagement, pride, and relationships with teachers [24], low connectedness locally normed as <12 (primary) and <8 (secondary).

Locally normed thresholds were defined as one standard deviation below the sample mean for each measure/school stage. Full item wording, response options, and scoring for all measures are provided in [Supplementary Data S1](#).

Analysis

Descriptive statistics were used to summarize samples and subgroup differences. Cochran’s Q tests compared negative response rates across stakeholder groups. Associations with negative responses were examined using mixed-effects binary logistic regressions with pupils nested in schools as a random effect. Separate models were estimated for primary (n = 2,979) and secondary (n = 7,835) pupils. Covariates, selected based on factors linked to help-seeking behavior [25,26] were entered hierarchically: (1) demographics (school year, sex, ethnicity, free school meal status), (2) school connectedness, (3) mental well-being. Intraclass correlation coefficients (ICCs) were derived from models. Variance inflation factors (1–2) indicated no multicollinearity. Analyses were conducted in IBM Statistics (v29) and R (v4.3.2.)

Results

Sample characteristics

The sample included pupils from years 4–13; 20% reported low school connectedness, and 15% reported low well-being ([Table 1](#)).

Full characteristics tables available in [Supplementary Data S2](#).

Table 1

Study characteristics for each school stage

	Total n (%)	Primary n (%)	Secondary n (%)
Totals	12,377	3,892 (100%)	8,485 (100%)
School year (age)			
Year 4 (8)	1,259	1,259 (33%)	
Year 5 (9)	1,289	1,289 (34%)	
Year 6 (10)	1,239	1,239 (33%)	
Year 7 (11)	2,027		2,027 (24%)
Year 8 (12)	1,934		1,934 (23%)
Year 9 (13)	2,066		2,066 (24%)
Year 10 (14)	1,398		1,398 (16%)
Year 11 (15)	455		455 (5%)
Year 12 (16)	403		403 (5%)
Year 13 (17)	202		202 (2%)
Missing	105	105 (3%)	
Sex			
Male	5,921	1,861 (51%)	4,060 (48%)
Female	6,212	1,787 (49%)	4,425 (52%)
Missing	244	244 (6%)	
Ethnicity			
White	5,054	1,993 (63%)	3,061 (38%)
Asian	3,921	710 (23%)	3,211 (40%)
Black	870	148 (5%)	722 (9%)
Mixed	980	230 (7%)	750 (9%)
Other	340	72 (2%)	268 (3%)
Missing	1,212	739 (19%)	473 (6%)
Free school meals			
Yes	7,033	1,134 (32%)	2,309 (28%)
No	4,729	2,420 (68%)	5,899 (72%)
Missing	615	338 (9%)	277 (3%)
Low school connect			
Yes	2,503	898 (23%)	1,605 (19%)
No	9,874	2,994 (77%)	6,880 (81%)
Low well-being			
Yes	1,793	602 (16%)	1,191 (14%)
No	10,574	3,290 (85%)	7,284 (86%)
Probable mental health difficulties			
Yes	3,562	238 (6%)	3,324 (39%)
No	8,815	3,654 (94%)	5,161 (61%)

Note: Percentages in Primary and Secondary columns are calculated within each stage (Primary N = 3,892; Secondary N = 8,485); Total percentages use the combined sample (N = 12,377). The term probable mental health difficulties is used across stages to reflect measure specific threshold definitions (see methods).

Pupil responses to identification by stakeholder

Overall, 12.7% (n = 496) of primary pupils reported a negative response to identification by at least one stakeholder group. Negative responses were most frequent when data were identifiable by schools 7.2% (n = 279), followed by external professionals 5.6% (n = 215) and parents or guardians 5.5% (n = 214). Cochran’s Q test indicated significant differences across stakeholder groups. School differed significantly from both other stakeholders; external professionals and parents did not differ.

Among secondary pupils, 28.4% (n = 2,414) reported a negative response by at least one stakeholder group. Negative responses were most frequent for identification by schools and parents/guardians (both 19.3%; n = 1,642 and n = 1,636, respectively), and less frequent for identification by external professionals (14.1%; n = 1,200). Cochran’s Q test indicated significant differences across stakeholder groups. External professionals significantly differed from both other stakeholders; schools and parents did not differ.

Across stakeholder groups, most of the negative responses reflected anticipated reductions in honesty compared to disengagement (less likely to take part) (Figure 1). This pattern was evident in both school phases, although more pronounced in secondary pupils. Among primary pupils, 3.4%–5.2% responded less honestly whereas 1.7%–2.2% indicated disengagement. Among secondary pupils, 8.1%–12.6% responded less honestly, and 6.7%–7.4% indicated disengagement.

Full tables provided in [Supplementary Data S3](#).

Factors associated with negative responses

Full model coefficients are available in [Supplementary Data S4](#).

Model performance (primary pupils)

Across stakeholder groups, models explained a small proportion of the variance in negative responses (pseudo- $R^2 = 0.02$ – 0.05). Improvements were primarily associated with school connectedness ($\Delta R^2 = 0.02$ – 0.03 from model 1 $\rightarrow$ 2), with minimal additional gain from mental well-being ($\Delta R^2 = 0.00$ – 0.01 from model 2 $\rightarrow$ 3). Intraclass correlations were low (ICC conditional = 0.03 – 0.05) indicating limited between-school variation. Predictive accuracy was low, reflecting the low base rate, but school connectedness was consistently associated with lower odds of negative response.

Associations with anticipated negative responses (primary pupils)

Despite modest model fit, several factors were associated with negative response across stakeholder groups (Figure 2). For identification by schools (A), female pupils (odds ratio [OR] = 2.01, 95% confidence interval [CI] = 1.49, 2.72) and pupils reporting low school connectedness (OR = 2.96, 95% CI = 2.12–4.14) or low well-being (OR = 3.05, 95% CI = 2.08–4.48) had higher odds of negative responses. For external professionals (B), low connectedness (OR = 2.24, 95% CI = 1.53–3.26) and low well-being (OR = 2.35, 95% CI = 1.52–3.64) were main factors.

For parents (C), younger pupils (year 6), females (OR = 1.74, 95% CI = 1.24–2.44), those identifying with “Other” ethnic backgrounds, and those with low school connectedness (OR = 2.71, 95% CI = 1.85–3.97) or low well-being (OR = 2.23, 95% CI = 1.48–3.68) had higher odds of negative response.

Model performance (secondary pupils)

Across stakeholder groups, models explained a modest proportion of the variance (pseudo- $R^2 = 0.06$ – 0.11). Improvements were primarily associated with mental well-being ($\Delta R^2 = 0.03$ – 0.06 from model 2 $\rightarrow$ 3), indicating a stronger contribution than primary models. Intraclass correlations were low (ICC conditional = 0.02 – 0.03) indicating limited between-school variation. Predictive accuracy was low, reflecting the low base rate, but mental well-being and school connectedness were consistent correlates.

Associations with anticipated negative responses (secondary pupils)

Despite modest model fit, several factors were associated with negative responses across stakeholder groups (Figure 3). For identification by schools (D), females (OR = 1.79, 95% CI = 1.51, 2.12) and older pupils, particularly year 12 (OR = 1.66, 95% CI = 1.26, 2.18), were more likely to report negative responses. Low well-being (OR = 1.48, 95% CI = 1.25–1.75) and scoring below the published WEMWBS benchmark (OR = 3.08, 95% CI = 2.68, 3.54) were also strongly associated, while school connectedness was attenuated when well-being was included. For external professionals (E), female pupils (OR = 1.50, 95% CI = 1.25–1.79), older pupils, and those identifying as Black (OR = 1.32, 95% CI = 1.03–1.69) were more likely to respond negatively. Low school connectedness (OR = 1.40, 95% CI = 1.18–1.65), low well-being (OR = 1.42, 95% CI = 1.18–1.70), and scoring below the published WEMWBS benchmark (OR = 2.92, 95% CI = 2.49–3.41) further increased the likelihood of negative response. For parents (F), female pupils (OR = 1.83, 95% CI = 1.55–2.17), older pupils, and those identifying as Black ethnicity

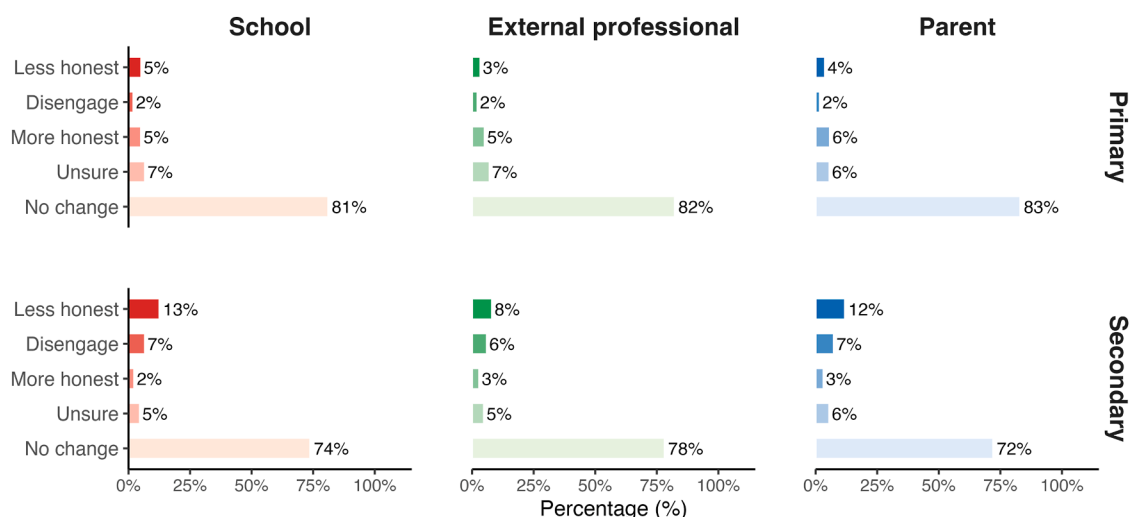


Figure 1. Percentage of pupils reporting changes in response behavior when identified by different stakeholder groups, shown separately for primary and secondary schools. Negative responses were defined as “Less honest” or “Disengage” (Colorised Web/BW Print).

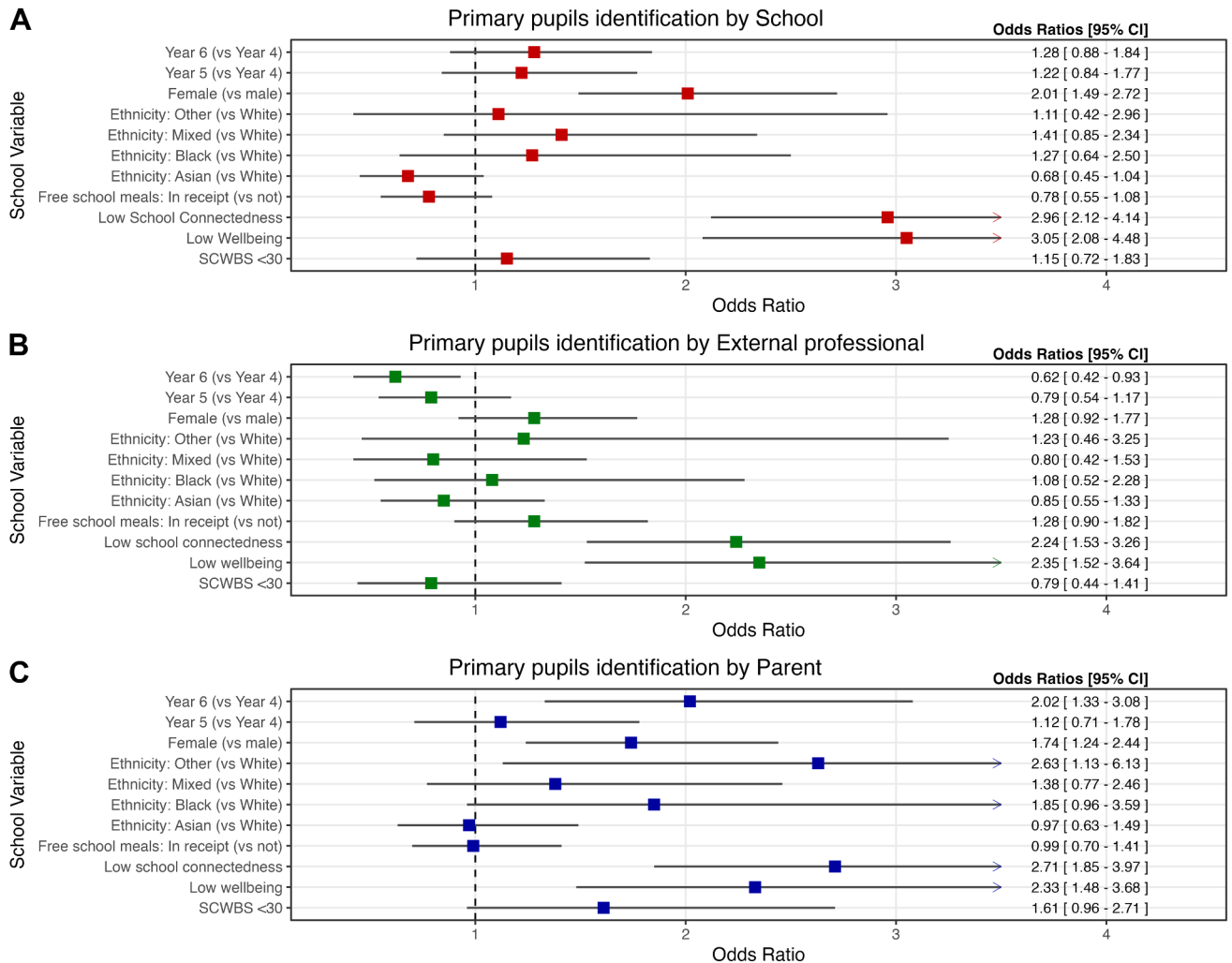


Figure 2. Final model odds ratios by stakeholder group (primary pupils) (Colorised/BW Print). SCWBS = Stirling Children's Wellbeing Scale.

(OR = 1.33, 95% CI = 1.06–1.68) were more likely to report negative responses, alongside those with low school connectedness (OR 1.31, 95% CI = 1.12–1.53), low well-being (OR = 1.87, 95% CI = 1.58–2.21), or scoring below the published WEMWBS benchmark (OR = 3.35, 95% CI = 2.90–3.86).

Discussion

Summary of principal findings

This large, prospective study examined how potential identification by school staff, parents, or external professionals is associated with pupils' reported honesty and engagement in well-being assessments. Pupils reported that identification would be associated with changes in responses across cohorts, especially secondary pupils. Identification by schools was associated with the highest levels of anticipated negative responses, while external professionals were viewed as least concerning; parents were also a concern for secondary pupils. Female pupils showed consistently higher levels of negative

responses, while ethnicity effects were limited. School connectedness was associated with lower levels of negative response in primary schools, although this association was attenuated in secondary schools when well-being was included. Low well-being was consistently associated with negative responses across both cohorts.

Does potential identification impact responses?

Our results suggest that potential identification is associated with pupils' responses, particularly in secondary schools, where almost a third indicated they would respond negatively if identified by at least one stakeholder. This suggests screening may be less acceptable for a substantial minority of pupils. These estimates may be conservative, as pupils who already had modified their answers may have reported no further anticipated change, and pupils endorsing change could only select one response option. As these findings relate to strength-based measures, responses may be more pronounced for symptom-based screening. This contrasts with studies reporting

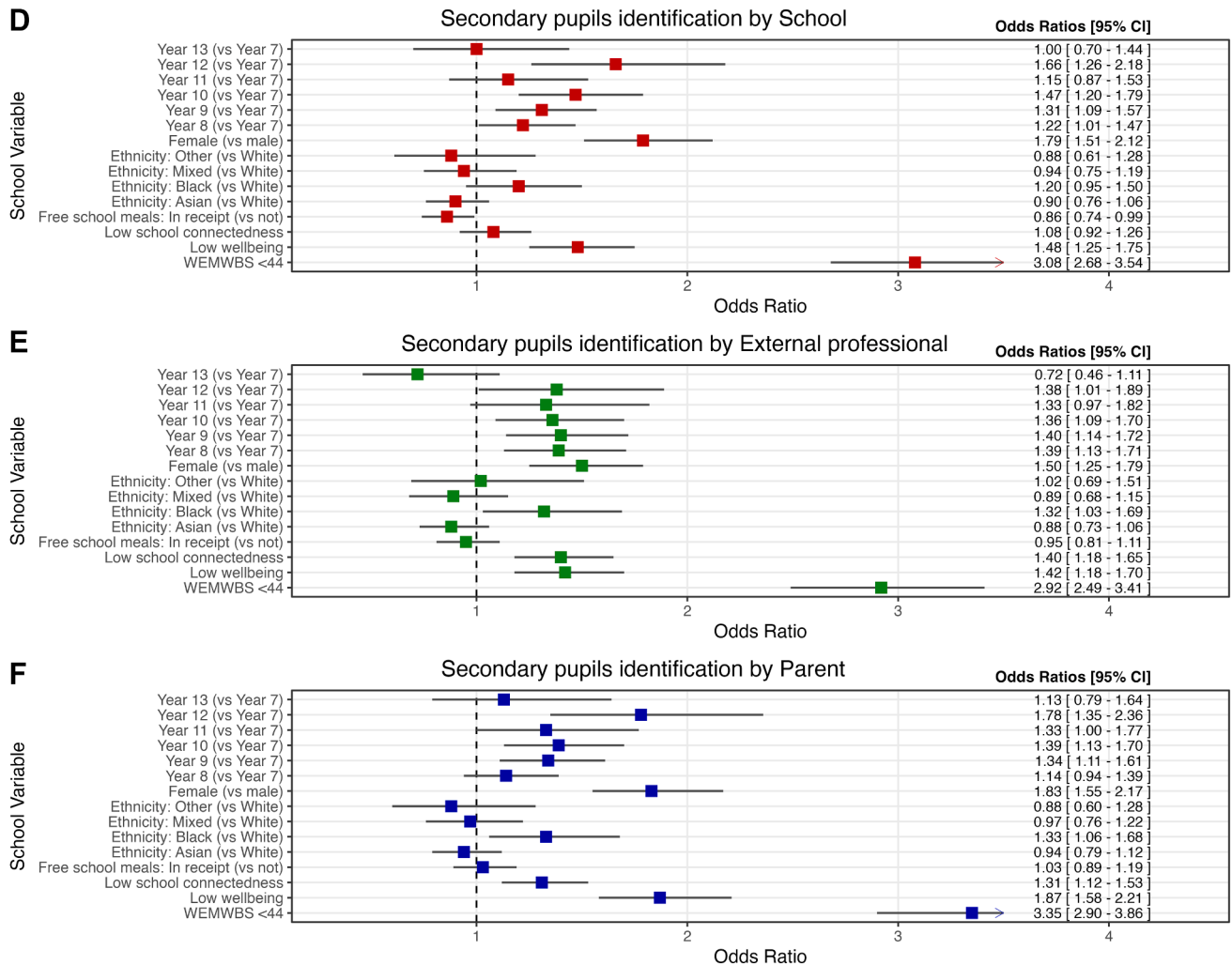


Figure 3. Final model odds ratios by stakeholder group (secondary pupils) (Colorised/BW Print).

moderate to high acceptability of screening in schools [27,28], which typically sampled pupils retrospectively. By assessing prospective responses, our design captures reported expectations about how identification may influence their responses, including potential constraints on authentic disclosure [14,29]. These issues appear to intensify as young people seek greater autonomy during adolescence, consistent with broader developmental literature [16,30,31].

Soneson et al. [17] similarly found that almost half of secondary pupils reported concerns about privacy and confidentiality when self-reporting mental health information, and a third felt these concerns might alter their responses. Their work focuses on anonymous, clinically oriented measures. Our findings support and extend this by showing similar effects even when assessments are positively framed and nondiagnostic, and that concerns also affect primary-aged pupils, to a lesser degree. In contrast, Wagle et al. [32] found little difference between identifiable and anonymous surveys among older adolescents, though their anonymous sample had already completed an identifiable assessment, likely filtering out those most uneasy with disclosure. Earlier validation studies [33,34] indicate that a small subgroup provide inauthentic responses regardless of

anonymity, underscoring the role of contextual trust reflected in our findings on school connectedness.

Does the stakeholder who handles pupil data matter?

Evidence from this study suggests that who handles data is associated with pupils' responses. Negative responses were most frequent for identification by schools (in both phases) and by parents in secondary pupils, whereas external professionals were associated with fewer negative responses. These findings align with help-seeking models that emphasize trust and context as facilitators of support [15,35]. Universal screening reduces help-seeking burden but limits pupils' control, heightening perceived risks of identification or judgment. Concerns regarding teacher judgment being observed by peers may further amplify worries around stigma or loss of privacy. Our findings also suggest developmental differences: primary pupils were relatively comfortable with parents and external professionals seeing their responses, while secondary pupils preferred external professionals, which may reflect a shift toward autonomy in adolescence, with external professionals

potentially viewed as more neutral, outside of school-home networks, therefore making disclosure feel safer.

RQ3: Are known help-seeking barriers linked to negative response to identification?

Several factors previously linked with help-seeking and disclosure were associated with pupils' responses, although models explained only a modest proportion of the variance (6%–11%), suggesting additional unmeasured factors may also influence pupils' anticipated responses. Female pupils appeared less comfortable with identification and data sharing than males, a finding consistent with Soneson et al. [17]. Often described as more willing help-seekers, females may be more cautious within universal school-based assessments, reflecting risk aversion and social pressures around self-presentation in institutions [36,37]. Screening in schools may therefore feel like a more public form of disclosure for some, which may prompt caution and reduce equity of access to support.

School connectedness was also associated with pupils' responses. In primary schools, low connectedness was associated with higher levels of negative responses, suggesting belonging and trust may support early engagement. In secondary pupils, this effect diminished once well-being was included, suggesting poorer mental health and a preference for autonomy may underlie negative responses.

Lower mental well-being was the most consistent factor associated with negative responses. This aligns with findings from Soneson et al. [17], who found a relationship between poorer mental health and increased privacy concerns, although stakeholder specific patterns were not examined. Notably, pupils at thresholds for low well-being or mental health difficulties often indicated they would respond inauthentically if identified, which may represent a barrier to accurate detection in universal screening systems. The concealable nature of mental health difficulties means pupils may be more likely to withhold or modify information when they fear stigma or negative consequences [38]. Fostering connectedness and emotionally secure environments may therefore be important for supporting authentic engagement, particularly for those already reluctant to disclose.

Whether these effects change when identification is framed more explicitly as a route to support is unclear. We included the prompt, "if you were to receive support" in the next wave to test supportive framing shifts responses. These findings will be reported separately.

The effect of schools

Beyond individual factors, school-level differences also appeared to influence responses, particularly in primary settings where between-school variance was greater, although ICCs were low. This indicates that school culture and leadership shape engagement with assessments. Fostering supportive environments is therefore an important consideration when implementing UMHS.

Implications for practice and policy

Effective and ethical implementation of mental well-being monitoring may depend on prioritizing confidentiality, autonomy, and trust, particularly at secondary level, through clear consent pathways and flexible disclosure options. Strengthening connectedness in primary years may promote openness and reduce stigma around identification. Strategies that address privacy concerns, clearly communicate how pupil data are used, and give pupils the ability to control who can access them, are likely to support engagement and more open self-reporting. Digital systems that give pupils control over how and when they share personal information may support autonomy and acceptability. Addressing these issues may improve acceptability and reduce deterrence among at-risk groups.

Strengths and Limitations

To our knowledge, this is one of the first large-scale quantitative studies to examine how identification and data sharing are associated with pupils' reported responses to universal school-based mental well-being assessments, and the first to compare these effects across both primary and secondary pupils. Recent work by Soneson et al. [17] explored adolescents' sensitivity to mental health assessment items, showing how perceived intrusiveness is related to their comfort and honesty in responding. Our findings extend this evidence by examining pupils' reported behavioral responses to hypothetical identification and data sharing across key stakeholders in both school phases. The study was embedded within a broader investigation of pupil mental well-being, producing community-based findings in which UMHS is intended to operate in practice.

Several limitations should be noted. The cross-sectional design captures only one point in time; longitudinal research is needed to understand how responses evolve, particularly across the transition to secondary school. Safeguarding constraints prevented collection of gender identity data, limiting insights into gender-diverse pupils. The sample, drawn from the West Midlands, may also not fully represent the national population, and some missing ethnicity data should be considered when interpreting the findings. Participation rates were modest, although very few pupils actively opted out once the survey had begun. It is not possible to distinguish between pupils who were not invited, present, or chose not to participate prior to survey completion, precluding systematic comparison between groups. As such, findings may not generalize to less engaged pupils, although this naturalistic sampling reflects how screening would likely operate in practice. Assessing large-scale screening acceptability is constrained by the need for identifiable data and follow-up support, which was not feasible here. A proxy measure of anticipated responses was therefore used, as an ethically permissible approach, although this may affect ecological validity. Additionally, the outcome measure may have underestimated negative responses, as pupils who had already modified responses may have reported no further anticipated change and could select only one response option. It is also possible that some pupils did not fully trust their anonymity. Responses were conditional and mutually exclusive, which may

have constrained the ability to capture concurrent effects on honesty and participation. Finally, while well-being tools were appropriate for screening, they reflect strength-based constructs and may include conceptual overlap between low well-being and published benchmark thresholds, which may influence interpretation of regression estimates. Symptoms-based measures such as the Revised Child Anxiety and Depression Scale [39], commonly used in mental health screening, were not feasible given ethical and service constraints.

Conclusion

This study provides new insights into pupils' engagement with school-based mental well-being assessments, highlighting perspectives rarely captured quantitatively, particularly among primary-aged pupils. Identification was associated with pupils' reported responses, especially in secondary schools, with schools and parents associated with the highest levels of negative responses and external professionals the lowest. Across school phase, female pupils were more likely respond negatively and low school connectedness was associated with higher levels of negative responses primary pupils. These findings emphasize the importance of trust, autonomy and connectedness in universal screening, and the need for future research on how these factors may shape its long-term acceptability.

Data Availability

Raw data are not publicly available and can only be provided in limited, anonymized format on reasonable request.

Ethics approval and consent

Ethical approval was obtained by The University of Warwick Biomedical & Scientific Research Ethics Committee (BSREC: 78/20–21). All procedures complied with national guidelines and were additionally reviewed by educational professionals working for Birmingham's Local Education Authority (LEA). As pupils were not identifiable to the study team, participation operated on an opt-out basis with small number suppression (<5) applied to minimize any risk of data matching and to enhance confidentiality.

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