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A qualitative evaluation of an in-school Social Norms Approach intervention for reducing unhealthy snacking behaviours amongst secondary school students.

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Abstract

Purpose: The Social Norms Approach (SNA) is a health behaviour intervention which promotes positive behaviour change by challenging and reducing misperceived social norms of peer behaviours and attitudes. This study reports a novel qualitative evaluation of an in-school SNA intervention which aimed to reduce 11-to-12-year-old students' unhealthy snacking behaviours by reducing misperceived peer norms.

Design: A qualitative evaluation of seven teachers' and eighteen students' experiences of taking part in the SNA intervention based on focus group discussions and an open-ended survey.

Findings: An inductive reflexive thematic analysis indicated that the SNA intervention was an effective and engaging means of delivering normative feedback to younger adolescents. The use of a paper-and-pens creative poster-making activity, where students were tasked with designing the intervention materials featuring normative feedback based on their baseline data, encouraged students to discuss and reflect on the discrepancies between their perceived norms and the actual reported unhealthy snacking norms. Challenges were identified with ensuring intervention fidelity and in students' understanding of how to record survey responses using Likert scales.

Originality: This study demonstrates the usefulness of exploring post-intervention perceptions of SNA interventions, particularly from the perspective of the intended recipients. The study also provides useful information for those intending to develop in-school SNA interventions in the future, particularly the importance of involving participants in the designing of intervention materials as a means of promoting engagement with an SNA-based dietary behaviour intervention.

Keywords: Social Norms Approach; adolescents; dietary behaviour; intervention; social norms; snacking.

Introduction

Adolescence is a key developmental period for establishing dietary behaviours and eating habits which continue into adulthood (Craigie *et al.*, 2011; Lake *et al.*, 2009). Promoting healthier patterns of behaviours amongst adolescents is important for optimal health and development (Racey *et al.*, 2016), particularly in school environments where interventions can be easily delivered and evaluated due to the intensive and direct contact schools have with adolescents (Calvert *et al.*, 2019). One means of encouraging positive health-related behaviours and attitudes is the Social Norms Approach (SNA) (Dempsey *et al.*, 2018; Perkins, 2003). This approach works by addressing commonly held misperceptions of others' behaviours and attitudes, highlighting the discrepancy between perceived and actual norms (e.g. perceptions that most people in your social group engage in unhealthy behaviours, such as drinking alcohol heavily, when this is not the case), reducing the perceived social pressure to conform to unhealthy social norms (Dempsey *et al.*, 2018). Whilst the SNA has been widely used in older adolescent and university student samples, particularly in relation to substance use (Dempsey *et al.*, 2016, 2018; Helmer *et al.*, 2014; Lally *et al.*, 2011; Lehne *et al.*, 2018; McAlaney *et al.*, 2011), there is a lack of SNA studies focusing on younger adolescents and their dietary behaviours.

The literature underscores adolescence as a critical period for establishing dietary behaviours, with interventions in school environments being particularly effective due to direct contact with adolescents. The SNA is identified as a promising strategy for promoting positive health-related behaviours, though its application among younger adolescents is limited. In response, we conducted a series of studies to develop and test the effectiveness of an in-school SNA feedback intervention focusing on unhealthy snacking behaviours in younger adolescents in the early years of secondary school in the UK (Year 7: ages 11-12 years). Our initial qualitative research indicated that secondary school students at this age understood what constitutes healthy eating and the consequences of poor dietary behaviours (Blinded for review). These students, however, still engaged in unhealthy eating practices and consumed larger amounts of snacks than recommended because of social normative pressures, perceived norms that unhealthy snacking is commonplace in their peer group, and to avoid peer disapproval (Blinded for review). This data, alongside input from an advisory group of students and teachers at the target school, guided the focus on reducing unhealthy snacking behaviours through an in-class SNA feedback intervention. Two schools in economically deprived areas of the North and Midlands of England (were allocated to receive the SNA intervention and a healthy eating information leaflet (intervention school) or the healthy eating information leaflet alone (control school). Year 7

1
2 58 students in the intervention school engaged in a poster-making activity where they were tasked with
3
4 59 designing posters featuring normative feedback messages based on a baseline survey of their dietary
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6 60 behaviours. The poster activity was designed to encourage students to attend to the SNA feedback and
7
8 61 was guided by recommendations from the student advisory group.
9

10 62 The findings from the intervention's baseline quantitative survey demonstrated that these
11
12 63 students overestimated their peers' consumption of unhealthy snacks (by 3.2 portions a day), and the
13
14 64 greater these misperceptions, the more likely the students were to consume unhealthy snacks (Blinded
15
16 65 for review). Quantitative findings from the intervention indicated that the SNA feedback significantly
17
18 66 reduced overestimates/misperceptions of peers' unhealthy snacking attitudes immediately post-
19
20 67 intervention, with the intervention group having reduced unhealthy snacking behaviours and having
21
22 68 less positive attitudes to unhealthy snacking at the three-month follow-up (Blinded for review)). The
23
24 69 relationship between exposure to the SNA intervention and changes in students' personal unhealthy
25
26 70 snacking attitudes was mediated by changes in perceived peer unhealthy snacking attitudes (Blinded for
27
28 71 review). These findings supported the SNA's focus on challenging misperceived social norms as a
29
30 72 means of promoting positive health behaviours and attitudes.

31
32 73 Although the quantitative findings from the SNA intervention indicated that it was successful
33
34 74 in promoting positive behaviours and attitudes (i.e., reducing unhealthy snacking, perceived peer
35
36 75 norms, and associated attitudes relating to eating unhealthy snacks), such data provide little insight into
37
38 76 the students' experiences of actually engaging with and understanding SNA feedback. This is important
39
40 77 as there is a general lack of qualitative evaluations of user engagement in SNA interventions (Dempsey
41
42 78 *et al.*, 2018) and few studies have used the SNA with younger adolescents, tending to focus on alcohol
43
44 79 and tobacco use (Linkenbach and Perkins, 2003; Vallentin-Holbech *et al.*, 2018) rather than dietary
45
46 80 behaviours. There is no published work on younger adolescents' experiences of engaging in a dietary
47
48 81 behaviour focused SNA intervention. Such evaluations are important for understanding which aspects
49
50 82 of an intervention best work for whom, under what circumstances, and in which context, and is
51
52 83 important for identifying and developing effective health-promoting interventions (Pawson and Tilley,
53
54 84 1997), as well as in understanding intervention fidelity (Schneider *et al.*, 2009). The aim of the current
55
56 85 study was to provide a qualitative evaluation of our in-school dietary behaviour SNA intervention
57
58 86 based on the experiences of the target adolescent sample and the teachers who coordinated the in-
59
60 87 school intervention sessions. **This paper contributes to the existing literature by shedding light on**

1
2 88 younger adolescents' and teachers' experiences of engaging in a SNA intervention that targets
3
4 89 unhealthy dietary behaviours, addressing a key gap in the evidence base.
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9

11 92 **Methods**

14 93 **Design and Participants**

17 94 Four focus groups with students from the SNA intervention school (10 females, 8 males; aged 11-12
18 95 years) were conducted in July 2018 to explore their experiences of taking part in the intervention,
19 96 completing the self-report measures, and suggestions for improvements to the intervention. The seven
20 97 teachers who coordinated the SNA feedback sessions at the intervention school completed a survey
21 98 containing a series of rating scales and open-ended questions about their experiences of the
22 99 intervention, the materials provided by the researchers, and suggestions for improvement. The
23 100 population in this study was deemed representative as it comprised Year 7 students from a school
24 101 located within the 30% most deprived areas of England (Noble *et al.*, 2019) which was matched to the
25 102 intervention control school. Institutional research ethics approval was obtained from (BLINDED FOR
26 103 PEER REVIEW).
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38 105 **Procedure**

41 106 Students who took part in the SNA intervention were invited to participate in the discussion groups,
42 107 with opt-out consent forms sent home to parents/guardians. A random selection of consenting students
43 108 was chosen by the Head of Year to participate. Focus groups were conducted during school time on
44 109 school premises with students asked to provide their own assent prior to the start of the discussion.
45 110 Discussions were audio-recorded and transcribed verbatim for analysis, with any personally
46 111 identifiable information removed. On completion of the discussions, students were thanked for
47 112 participating and debriefed by providing the students the opportunity to ask questions, alongside
48 113 providing contact details for the research team and children's support services, e.g. Kids Helpline, in
49 114 the event they had any further enquires or needed additional support. Teachers were invited to
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1
2 115 participate in the survey via an internal school letter, provided their consent before completing the
3
4 116 survey, and were thanked and debriefed upon completion.
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7 117

8 9 118 **Data analysis**

10
11
12 119 Teachers' responses to the closed-ended questions were analysed using SPSS (IBM SPSS Statistics,
13
14 120 2020). Transcripts from the student focus groups and open-ended responses from the teachers'
15
16 121 questionnaires were inductively analysed using reflexive thematic analysis (Braun and Clarke, 2019)
17
18 122 and NVivo (QSR International Pty Ltd, 2016).
19

20 123

21 22 23 124 **Reflexivity**

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25
26 125 The first author, who led the focus group discussions and analysis, is a 35-year-old white female from
27
28 126 a middle-class background with previous experience of conducting psychological research with
29
30 127 children of a similar age. All three authors are from backgrounds different to the target student
31
32 128 population in terms of their geographical location and socio-economic status as well as their status as
33
34 129 university-based researchers. During the research process, the researchers were mindful that their
35
36 130 outsider perspective may have influenced the analysis, and so particular efforts were made to retain a
37
38 131 focus on the participant data throughout the inductive analysis. The lead author kept a reflexive journal
39
40 132 throughout the research programme and had regular supervision meetings with the second and third
41
42 133 authors to discuss the research process and the qualitative analysis reported here.
43

44 134

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46 135

47 48 **Results**

49 136 **Teachers' quantitative survey results**

50
51 137 Table 1 presents descriptive statistics of the teachers' responses to the closed-ended questions. The
52
53 138 means indicated that teachers felt that the lesson plan for the in-school SNA feedback session was easy
54
55 139 to understand, follow and implement, that students engaged with the poster-making activity, and that
56
57 140 the feedback messages were easy to understand.
58

(INSERT TABLE 1 HERE)

Qualitative analysis of students' and teachers' experiences

The inductive reflexive thematic analysis identified three main themes in the student focus groups and teacher survey data, each of which impacted students' engagement in the SNA intervention: (i) *enjoyment*; (ii) *organisation and intervention delivery*; and (iii) *understanding*. Quotes from students are presented with pseudonyms.

Enjoyment

This theme discusses how the SNA feedback session was an enjoyable and engaging method for delivering feedback to young adolescents in a school setting, with two sub-themes focusing on this approach as a *novel* and *creative* method.

Novel

The interactive approach used to deliver the intervention was well received by both students and teachers (“*we got something to do, that was new, that we’ve never tried out before*”, Laura). The intervention gave students a unique opportunity to work in group and address a topic that was yet to be taught:

“*We work in pairs sometimes, but we never get put into like, groups like, like there was like five of us doing it together*” (Emily)

“*In high school we like don’t do it [discuss healthy eating], like at all*” (Tasmin)

The novelty of the SNA feedback activity made the session fun and enjoyable for students (“*we don’t get to do like really fun lessons*”, Laura). The competition format helped keep students’ attention on the SNA feedback (“*pupils loved the competition element*”; Teacher 1; “*we got to compete against different [groups]*”, Laura). The use of a creative activity to deliver the SNA feedback generally

1
2 167 engaged the participants in the intervention, with the novelty and enjoyable nature of these activities
3
4 168 being particularly successful.

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8 9 170 ***Creative***

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11
12 171 Being able to create the feedback materials themselves made the session interesting and enjoyable for
13
14 172 the students as they were actively involved in designing the intervention resources (“*it’s more fun to*
15
16 173 *make ‘em [sic]’*”, James). Creating the intervention materials encouraged the students to attend to and
17
18 174 actively reflect on the feedback more so than if they just viewed print-based SNA messages (“*I’d*
19 175 *rather make it than see it*”, Noah):

20
21
22 176 “*We were given information sheets so while we were writing we were thinking about like....like*
23
24 177 *thinking about, the actual meanings towards doing it not just doing it and being like oh, like*
25
26 178 *not ever speaking about it again*” (Emily)

27
28
29 179 There was some concern that being creative may have distracted some students from attending
30
31 180 to the feedback messages (“*The session became more about making the posters look attractive rather*
32 181 *than understanding the research findings*”, Teacher 1; “*I think we should have done more writing as*
33
34 182 *we did a lot of drawing*”, Lucas). The SNA feedback session was well received by students, but some
35
36 183 may have benefited from a class discussion prior to designing the posters to ensure all students had
37 184 time to actively consider their feedback before creating the posters:

38
39
40 185 “*If there was a PowerPoint created for us to be able to discuss the findings of the research with*
41
42 186 *pupils before making the posters*” (Teacher 1).

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44
45 187

46 47 188 **Organisation and Intervention Delivery**

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49
50 189 This theme describes how the organisation of the in-school SNA feedback sessions influenced
51
52 190 students’ experiences and engagement. This theme has three sub-themes which discuss *consistency*,
53 191 *timing*, and *group work*.

54
55 192

193 **Consistency**

194 One of the challenges of organisation was maintaining consistency in intervention delivery, and
195 therefore intervention fidelity, although the student discussions suggested general consistency in how
196 teachers coordinated the sessions across the different classes. As per the planned intervention, the
197 majority of students stated that they presented their SNA feedback posters to the rest of the class (“we
198 explained to the rest of the class”, Beth), and voted for the best poster (“we voted for the best one”,
199 Rose). There were a limited number of students who stated they did not present their posters and vote
200 as they ran out of time (as these were the last activities in the practical session).

202 **Timing**

203 A point of discussion amongst students and teachers was that the timetabled hour for the intervention
204 session did not seem to be long enough, and may have limited the time students had to consider and
205 understand their feedback:

206 “Not enough time” (Teacher 2)

207 “Yeah, longer would be better cause some people are like rushing to do it” (Tasmin).

208 “I would have liked more time to be able to get messages across” (Teacher 1).

209 The lack of time may have been related to variations in how teachers had organised the sessions
210 (“they already had it set up ready”, James; “it needs a bit of setting up before cause [sic] we had to
211 give it all out”, Ari). This could also be due to students taking time to plan their poster (“that we didn’t
212 get a lot of time to do it, because we had to like plan it out”, Laura) and to navigate the group working
213 (“by the time we’d worked it all out we were like, twenty minutes in”, Emily). Whilst the in-school
214 approach for the SNA feedback was a creative and engaging means of delivering the intervention,
215 ensuring consistency in intervention exposure and engagement with feedback remains a challenge
216 (Dempsey *et al.*, 2018).

217

Group work

219 Students were organised in small groups to produce their posters based on the provided SNA messages.

220 One teacher discussed how students “*worked really well in teams to create the most imaginative and*
221 *informative poster*” (Teacher 1). There was evidence that some students found group working to be
222 challenging:

223 “*in my class err we don’t usually, err have groups*” (Rose)

224 “*Probably found it more difficult that we got mixed up with different people that we’ve not*
225 *really spoke to, or don’t really know, an’ then we had to try and get to know each other*
226 *whilst doing the poster*” (Claire)

228 Despite such challenges, discussing the SNA feedback with peers appeared to facilitate social
229 comparison and a discussion of social norms (“*how they [peers] think*”, Tasmin):

230 “*I rather like (to) do it groups (sic) because I can like see what like from everybody’s*
231 *perspective not only from mine*” (Rose)

232 The group format of the intervention appeared to reinforce the credibility and social
233 acceptability of the SNA feedback messages being presented:

234 “*it gives you a chance to expand on what you thought you know [about peer behaviour]*”
235 (Tasmin)

236 There was no mention in the discussions or teacher survey of students questioning the accuracy
237 or the credibility of the normative feedback messages, which were based on students’ baseline data
238 (Blinded for review), both of which are important points for maximising the effectiveness of SNA
239 feedback (Dempsey *et al.*, 2018; McAlaney *et al.*, 2011). Allowing students time to discuss the SNA
240 messages with their peers during the poster activity appeared to enhance the personal relevance of the
241 feedback.

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2 242
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45 243 **Understanding**

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7
8 244 This theme focuses on students' understanding of the survey items used to measure normative
9 245 misperceptions and their understanding of the SNA feedback which aimed to challenge these
10 246 misperceptions. This theme has three sub-themes which discuss *knowing what to do*, *concerns about*
11 247 *being judged*, and *understanding the SNA feedback messages*.

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19 249 ***Knowing what to do***

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21 250 To measure students' snacking behaviours, attitudes, intentions, and perceived norms, a self-report
22 251 survey was designed with input on the item wording from the student advisory group. This involvement
23 252 of the target population meant that students generally found the questionnaire survey easy to understand
24 253 ("*Err the questions were easy to answer*", Lily), as items were brief, unambiguous, and quick to
25 254 complete ("*I finished in about 15 minutes*", Oliver). There were, however, aspects of the survey which
26 255 some students seemed to struggle with, which may explain some of the missing data we later noted
27 256 (Blinded for review). For example, some students found the items relating to personal and perceived
28 257 snacking attitudes easier to complete compared to behaviour-related items ("*These ones more*
29 258 *straightforward than them ones*", Claire), owing to students not knowing how to record responses
30 259 using the Likert scale ("*Just like the numbers an [sic] the co—colons, is it?*", Emily). Students found
31 260 recording their answers using tick boxes simpler and quicker compared to understanding Likert scales
32 261 ("*These, cause err it says chocolate and you just tick which one you think ...*", Claire). Students
33 262 suggested that alternative ways to collect responses could be by colouring percentage figures ("*(you*
34 263 *could) put the people an' how many they are so like ten an' then, like one to ten an' we could colour*
35 264 *how many people we think*", Laura).

36
37
38
39 265 There was also some confusion with the participant identifier passwords we had asked students
40 266 to create in order to facilitate our matching of their survey responses across different time points in the
41 267 intervention ("*I didn't get the password thing on it*", James; "*I don't remember it*", Noah). Partly, this
42 268 confusion was related to students not fully understanding the purpose of the password ("*why do we*
43 269 *have to write the first two letters of our most memorable male and female*", Tasmin). Although we
44 270 were careful to pilot the wording of the survey items and instructions with the advisory group, there

1
2 271 was still confusion amongst some students with some aspects of the surveys. Alternative means of
3
4 272 matching responses (e.g., based on demographic information) and simplifying response options for
5
6 273 younger adolescents are needed to reduce missing data.
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8 274
9

11 275 ***Concerned about being judged***

14 276 It was notable that some of the girls, but not the boys, misunderstood how the questionnaire items
15
16 277 would be used, and discussed that they felt they would be judged for how they responded to the
17
18 278 questionnaire items (*“the judging part”*, Rose), which made some students feel insecure about their
19
20 279 own snacking behaviours (*“It makes me like a bit insecure about what I eat an’ [sic] not wanna [sic]*
21
22 280 *answer it”*, Tasmin). Some students were concerned about making inferences about peers’ unhealthy
23
24 281 snacking behaviour at the early stage of their secondary school career:

25
26 282 *“We didn’t really know because you don’t really know that many people, you’re in year seven*
27
28 283 *so you don’t know that many people...”* (Claire)

30 284 The fear of judgement may be motivated by a misunderstanding that they would be identified
31
32 285 from their data (*“so why does it say, like what is your date of birth?”*, Rose) and/or that peers could
33
34 286 see their responses (*“in my class when sometimes I look at others, they were like look(ing)”*, Rose).
35
36 287 For girls specifically, there seems to be a fear that their response about personal and perceived
37
38 288 unhealthy snacking will not be perceived as normative or socially acceptable, so reassuring students of
39
40 289 their anonymity, and checking understanding would give them the confidence to answer candidly
41
42 290 without fear of social disapproval (*“you just have to like reassure them, like that you’re not going to*
43
44 291 *be judged like”*, Tasmin).

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48 293 ***Understanding the SNA feedback messages***

51 294 The feedback messages were developed around the three most-pronounced discrepancies between
52
53 295 perceived and actual snacking norms, for boys and girls, from the baseline survey data (Blinded for
54
55 296 review). Both students and teachers stated that the feedback messages were easy to understand (*“Yeah,*

1
2 297 *I found it easy to understand*”, Ari; *“messages were easy to understand”*, Teacher 1), and clearly
3
4 298 demonstrated the discrepancies between actual and perceived norms for snacking behaviours:

5
6
7 299 *“When you look at this an’ [sic] err, you see what they think and then what it actually it’s like”*
8 300 (Ava)

9
10
11 301 However, some students may have had difficulty understanding the percentage figures
12
13 302 communicated in the feedback messages:

14
15
16 303 *“Yes, I understand it, but I’m just thinking of like, other people who might not get percentages ...*
17 304 *I’m just worried for people who don’t really get maths ... it’s not their strong point”*
18
19 305 (Tasmin)

20
21
22 306 Students did, however, feel that the visual representation of the percentages using silhouettes
23
24 307 of stick people shaded in was an effective way to communicate percentages to students in the feedback:

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26
27 308
28
29
30 309 *“Understand how many people like oh it’s just seventy percent but then when you actually see*
31 310 *it in the people it makes more sense”* (Emily)

32
33
34 311 The highlighting of the actual and perceived norms, and the use of visual representations of
35
36 312 these discrepancies, helped students to understand the feedback and many reported being shocked by
37
38 313 what they read:

39
40
41 314 *“They were easy to read but then it was quite shocking to the fact err [sic] how it’s said like*
42 315 *how it’s said, and we know that we’ve done that”* (Claire)

43
44
45 316 The SNA feedback led students to actively consider their perceptions of their peers’ unhealthy
46
47 317 snacking:

48
49
50 318 *“More aware to be honest ... before you’re actually thinking about it like, the percentages and*
51 319 *how other people think not just how you think, it actually makes you more aware”* (Tasmin)

1
2 320 A sense of shock or surprise appears to be a key mechanism underlying the effectiveness of
3
4 321 SNA feedback as a behaviour change strategy(Dempsey *et al.*, 2018), and this appeared to motivate
5
6 322 the students to reduce their unhealthy snack consumption:
7

8 323 “Not eating as much now” (Thomas)
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10
11 324 “I used to eat like 5 packets of crisps in like three days, now I eat like one every three days”
12
13 325 (Beth)
14
15

16 326 17 18 **Discussion** 19 327

20
21
22 328 This study evaluated the experiences of participating in an in-school SNA intervention from the
23
24 329 perspective of the student target sample and the teachers who coordinated the intervention delivery in
25
26 330 school. This is the first reported evaluation of younger adolescents’ experiences of participating in a
27
28 331 SNA feedback intervention focusing on dietary behaviours, addressing a key gap in the literature
29
30 332 (Dempsey *et al.*, 2018). Our findings indicated that younger adolescents (secondary school students
31
32 333 aged 11-12 years) were actively engaged in the poster-making activity at the centre of our SNA
33
34 334 intervention, understood their normative feedback and engaged in a reappraisal of their perceived
35
36 335 norms, with many reporting a sense of surprise after viewing the actual reported norms.
37

38 336 Our use of an interactive creative poster-making activity was a novel means of delivering SNA
39
40 337 feedback. This choice of intervention modality was guided by feedback from a student advisory group
41
42 338 and practical considerations associated with limited computer availability in the school. It should be
43
44 339 noted that SNA interventions can take various forms, from print-based marketing campaigns to more
45
46 340 digital personalised normative feedback approaches (Bewick *et al.*, 2013; Cookson *et al.*, 2021;
47
48 341 Dempsey *et al.*, 2018; Marley *et al.*, 2016; Perkins *et al.*, 2010). There were some unexpected benefits
49
50 342 to our practical, creative, pens-and-paper approach to the feedback session as this gave students an
51
52 343 active role in designing and creating the campaign materials, ensuring that they viewed, discussed, and
53
54 344 reflected on their normative feedback. The visual representation of the feedback, where percentages
55
56 345 were represented by stick figures with shading, improved understanding of the normative feedback,
57
58 346 something which a previous study with older adolescents reported difficulty with (Stock *et al.*, 2020).
59
60 347 Whilst some students found the group working challenging, many appreciated the group-based nature
61
62 348 of the feedback activity, and this facilitated students discussing the feedback with the same peers the

1
2 349 norms feedback was derived from. Allowing this process of discussion and reflection in a group
3
4 350 appeared to help promote the credibility of the feedback and the students' reappraisal of their normative
5
6 351 perceptions.
7

8 352 The focus group discussions also revealed that girls, but not boys, felt judged for how they
9
10 353 responded to the questionnaire and appeared sensitive to perceived pressure to give socially desirable
11
12 354 answers. There seemed to be a misunderstanding amongst the girls about potentially being identifiable
13
14 355 from their data or that peers could see their responses. Our formative qualitative work indicated that
15
16 356 the girls, but not boys, at the sampled schools felt judged by other students (particularly by the boys)
17
18 357 for their dietary behaviours (Blinded for review). Future research needs to consider reassuring similarly
19
20 358 aged participants of their data confidentiality, as well as exploring in more depth why girls feel judged
21
22 359 for their dietary choices and behaviours.

23 360 Students expressed a sense of 'shock' when engaging with the SNA feedback messages,
24
25 361 something which has been observed in other age groups (Marley *et al.*, 2016; Neighbors *et al.*, 2009;
26
27 362 Stock *et al.*, 2020). This sense of surprise helped our participants to actively consider the SNA feedback
28
29 363 content, facilitating a comparison of their perceptions and personal norms with actual norms, leading
30
31 364 to positive health behaviour change. This supports the idea that being surprised by social norms
32
33 365 feedback could be a key part of the mechanism underlying the SNA's effectiveness as a behaviour
34
35 366 change approach (Dempsey *et al.*, 2018).

36 367 In terms of the practical implications from our evaluation, both students and teachers suggested
37
38 368 that additional time was needed for students to read and reflect on the feedback messages, with teachers
39
40 369 suggesting additional discussion time prior to the poster activity may have been useful. Care needs to
41
42 370 be taken that SNA feedback is perceived to come from the broader social group, not from an authority
43
44 371 figure such as a teacher (Dempsey *et al.*, 2018); therefore, more time to allow a peer-led discussion of
45
46 372 the normative messages may be helpful to promote students' reflection on their feedback. Future
47
48 373 interventions should consider how long participants have to understand and process normative
49
50 374 feedback, especially as many health behaviour change interventions in applied settings tend to be brief
51
52 375 in nature (Bewick *et al.*, 2021), including the intervention we have evaluated here. **Peer-led discussions**
53
54 376 **can support a deeper level of reflection and understanding which could enhance the effectiveness of**
55
56 377 **behaviour change interventions.**
57
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2 378 Whilst our data indicate that students were able to understand the wording of the survey items
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4 379 on unhealthy snacking, some reported difficulty in using Likert scales which is consistent with other
5
6 380 studies sampling children and adolescents (Mellor and Moore, 2014). Some students also had difficulty
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8 381 creating a memorable password to assist in matching their data collected over the course of the
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10 382 intervention, leading to some missing data for the quantitative analyses(Blinded for review). Using
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12 383 alternative methods (e.g., demographic data) to identify participants across timepoints may be required
13
14 384 in the future given that this is less likely to be inaccurately recorded (Audette *et al.*, 2020). This will
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16 385 help particularly with intervention studies which are evaluating whether changes in health-related
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18 386 behaviours and attitudes are maintained over the longer-term (Bewick *et al.*, 2021; Dempsey *et al.*,
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20 387 2018).

21 388 From a policy perspective, in the United Kingdom there has been a focus on balanced diets and
22
23 389 swapping of unhealthy food items for healthier choices through national information campaigns
24
25 390 targeting school students and their families (Public Health England, 2020). Future work could consider
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27 391 combining such approaches with SNA normative feedback to further promote the social acceptability
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29 392 of such food choices to reduce excessive unhealthy snacking and promote healthy eating in secondary
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31 393 school students. Given the focus on food swapping (of unhealthy snacks for healthier alternatives),
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33 394 future research and policy developments could focus more specifically on the social norms of food-
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35 395 swapping behaviours (e.g. understanding and highlighting the actual norms of healthier food swaps),
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37 396 rather than aiming to only reduce unhealthy snacking as was the focus in our intervention (Blinded for
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39 397 review). One simple, but key, implication for healthy eating policies in schools is to ensure that related
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41 398 interventions are engaging and enjoyable for adolescents to take part in. As discussed in the qualitative
42
43 399 data presented here, the successful engagement of younger adolescents in a dietary behaviour
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45 400 intervention was dependent on their active involvement in the intervention and the experience of this
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47 401 as a 'fun' and 'different' activity to complete. **Finally, the importance of receiving SNA feedback in**
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49 402 **the presence of peers given adolescents are especially susceptible to social influence (Rivis and**
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51 403 **Sheeran, 2003; Story *et al.*, 2006) and group-based discussion can help reduce the strength of the**
52
53 404 **unhealthy misperceptions which has implication for health promotion policy development.**
54
55 405 **Policymakers could consider leveraging social influence and peer dynamic through delivering SNA**
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57 406 **feedback in a group-based discussions challenging perceived norms and promote healthier dietary**
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59 407 **behaviours among adolescents.**
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1
2 408 A strength of this study is that this is the first qualitative exploration of younger adolescents'
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4 409 perceptions of participating in an in-school SNA intervention focusing on reducing unhealthy dietary
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6 410 behaviours. The integration of both students' and teachers' experiences generated a multidimensional
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8 411 view of the delivered intervention and highlighted common experiences and areas for development for
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10 412 future SNA interventions working with this target group and behaviour. One limitation is that we were
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12 413 not able to conduct focus group discussions with the teachers who coordinated the intervention sessions
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14 414 due to competing demands on teachers' time. Whilst a focus group with teachers may have
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16 415 accommodated a more in-depth exploration of their experiences, we did find consistency across the
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18 416 teachers' surveys and the student discussions in terms of their experiences of participating in the
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20 417 intervention.

21 418 In conclusion, this qualitative study demonstrates that an in-school Social Norms Approach
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23 419 intervention can be successfully delivered within a school environment and can engage young
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25 420 adolescents and create an opportunity for students to reflect on their perceived social norms, how their
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27 421 (mis)perceptions may differ from actual reported norms in their peer group, reappraise these
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29 422 perceptions, and promote more positive dietary behaviours. The creative, group poster-making SNA
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31 423 intervention session was viewed as an enjoyable and engaging means of delivering normative feedback
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33 424 to young adolescents. For this age group, receiving SNA feedback that was easy to understand, whilst
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35 425 in the presence of peers, helped them attend to the feedback content and credibility. Ensuring that
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37 426 participants are given sufficient time to read, discuss, and reflect on SNA feedback, as well as using
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39 427 age-appropriate activities and age-appropriate response options on survey items, and ensuring young
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41 428 adolescents maintain a feeling of anonymity is important for ensuring their engagement in this type of
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43 429 intervention. Finally, the present study demonstrates the importance of gaining in-depth qualitative
44
45 430 feedback on participants' experiences of engaging with such interventions, particularly as an aid for
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47 431 reflecting on the interventions delivered and in identifying areas for further improvements.

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3 **1 Table 1. Descriptive statistics of the quantitative questionnaire items**
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| Questionnaire items | Mean ^a | SD |
|---|-------------------|-----|
| I feel that the provided teacher's lesson plan was easy to understand. | 4.29 | .76 |
| I feel that the teacher's lesson plan was easy to follow and implement. | 4.29 | .76 |
| I think the students engaged with the poster-making activity. | 4.14 | .90 |
| Do you think the messages for the posters were easy to understand? | 3.57 | .98 |

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19 **2** ^a Response options ranged from 1 – strongly disagree/hard, to 5 – strongly agree/easy
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