Psychosocial interventions for adults with visible differences: A systematic review

Running title: Adults and visible difference review

Author Details:

Norman, Alyson[1](corresponding author): Alyson.norman@plymouth.ac.uk, tel: +44(0)1752 584844.

Moss, Timothy.P[2]. tim.moss@uwe.ac.uk

1: School of Psychology, Plymouth University, Portland Square, Drake Circus, Plymouth, UK, PL4 8AA

2: Centre for Appearance Research, University of the West of England, Frenchay Campus, Coldharbour Lane, Bristol, UK, BS16 1QY.

Abstract

Background: Some individuals with visible differences have been found to experience psychosocial adjustment problems that can lead to social anxiety and isolation. Various models of psychosocial intervention have been used to reduce social anxiety and appearance related distress in this population. The objective of this review was to update a previous systematic review assessing the efficacy of psychosocial intervention programs for adults with visible differences. The original review (Bessell & Moss, 2007) identified 12 papers for inclusion.

Methods: A search protocol identified studies from 13 electronic journal databases.

Methods: Studies were selected in accordance with pre-set inclusion criteria and relevant data were extracted.

Results: This update identified an additional four papers that met the inclusion criteria. Two papers provided very limited evidence for the efficacy of a combined cognitive-behavioural and social skills training approach. None of the papers provided sufficient evidence for the optimal duration, intensity or setting of psychosocial interventions for this population.

Discussion: The review concluded that a greater number of Randomised Controlled Trials and experimental studies were required to increase the methodological validity of intervention studies.

Keywords:

- Visible differences, Psychosocial, narrative synthesis, Cognitive-behavioural therapy, Social skills training

Introduction

The term visible difference refers to any kind of condition, whether congenital or acquired that can leave an individual with an altered appearance (e.g. skin conditions, burns, scarring or craniofacial abnormalities. Some individuals with visible differences have been found to experience psychosocial adjustment problems that can lead to social anxiety and isolation (Rumsey et al, 2004; Rumsey & Harcourt, 2012) and poor quality of life (Marcusson, Paulin & Ostrup, 2002). As such, appearance altering conditions present a clear challenge to a positive body image for those affected and have led to the development of numerous psychosocial intervention programs designed to address the psychological, as well as the physical needs and difficulties experienced by those with visible differences. The psychosocial difficulties experienced by some of those with visible differences include name calling, staring and unsolicited questioning about their appearance (Kleve & Robinson, 1999).

There are many different models that outline the difficulties experienced by some individuals with visible differences. These include the social anxiety model (Baumeister & Leary, 1995), Goffman's (1968) model of stigma, social skills models (Bull & Rumsey, 1988) and models of body image disturbance (Cash, 2001). Baumeister and Leary's (1995) model suggests that individuals with visible differences experience social anxiety at least in part because they are fearful of being rejected or excluded on the grounds of having an unusual or different appearance (Kent, 2000). Therefore, this model suggests that it is important to focus interventions on reducing social anxiety through exposure to social situations in order to promote positive adjustment amongst those with visible differences (Newell & Marks, 2000). Goffman's (1968) stigma model fits in many ways with the social anxiety model, and states that having a different appearance is a characteristic that is "devalued" by society and

as such those with a visible difference are more likely to be excluded or rejected, which suggests a very real reason for experiencing social anxiety.

Some research has suggested that those with visible differences can become preoccupied with their own appearance due to high levels of distress (Clarke, 1999). This preoccupation can make people seem distracted or lacking confidence when they are in public (Kent, 2000). Therefore, the social skills model suggests that many of the negative reactions that they experience from others are less to do with stigma, as Goffman's (1968) model would suggest, but more a reaction to the poorer social skills that the person with the visible differences is exhibiting (Bull & Rumsey, 1988). These two models do not necessarily have to be mutually exclusive. The reality of the situation for many people with visible differences is indeed that they experience some level of rejection and exclusion from others, but in some cases this effect is exacerbated by the poor social skills that they have developed (Kent, 2000). Therefore, focusing on improving social skills is a key focus for intervention models (Rumsey, Robinson & Partridge, 1993).

Finally, the body image disturbance model (Cash, 1996) suggests that in the case of visible difference, the individuals may experience dissatisfaction with their body image because they do not conform to the cultural norms of attractiveness that their society imposes. This social pressure to look a certain way, alongside a more personal form of stigma, where they themselves feel they should look "normal", can lead to high levels of body image disturbance, which is associated with poorer adjustment (Altabe & Thompson, 1996). This model suggests that interventions should focus specifically on addressing the way individuals feel about their appearance and the negative assumptions they make about the importance of appearance.

The reality is that no one model completely explains the experience of living with a visible difference. Kent (2000) recommended an integrated model that addresses body image dissatisfaction and the negative assumptions associated with appearance concerns. He also suggested that it is important to target social anxiety with exposure therapy (introducing people to feared social situations). However, as there is a very real tendency for individuals to experience negative responses from others, it is important to boost social skills too, in order to provide individuals with the techniques that they will need to deal with these responses. Both social skills training (SST) and cognitive behavioural therapy (CBT) are common intervention types for adults with visible differences.

Although these intervention techniques for people with a visible difference are used, there is still a significant lack of evidence pertaining to the efficacy of these different psychosocial techniques. A systematic review conducted by Bessell and Moss (2007) found little to no evidence to support any particular intervention model, due to methodological constraints associated with the included studies. Since the review was published other studies have assessed the efficacy of various psychosocial intervention models for adults with visible differences. For that reason it is important that the original review be updated to ensure an accurate evidence base for psychosocial interventions for this population.

A recent systematic review conducted by Muftin and Thomson (2013) looked at self-help psychosocial interventions for individuals with visible differences. Whilst this is an important update, the review does not incorporate all forms of psychosocial intervention, only those administered in a self-help format. Therefore the review does not help to answer fundamental questions raised by our original review regarding method of delivery (Bessell & Moss, 2007). It is therefore, the belief of the current authors that this update is both needed and timely.

Objectives

The aim of the present study was to update the existing systematic review (Bessell & Moss, 2007) of the efficacy of psychosocial intervention programs for adults with visible differences from 2006 (the date of the last search) to the present day. Where appropriate, meta-analysis was used to synthesise findings across papers. The overall intention of this study was to identify methodological issues in need of further attention in this area of research. Furthermore, we hoped that this review would aid in the development of new intervention programs within the field of visible differences.

Materials & Methods

Study selection

The search aimed to identify all studies relating to psychosocial interventions for adults with visible differences from January 2006 (six months prior to the original search in Bessell & Moss, 2007) to 12th May 2014. An extensive search strategy was used to search 13 databases, including Medline, embase, psychinfo, and Cochrane central register of Controlled trials (CENTRAL) (See Appendix A for full search strategy). This was compiled by a library technician based on an exhaustive list of appearance altering conditions and types of psychosocial intervention. No language restrictions were applied. In addition websites including National Institute of Clinical Excellence (NICE) and the metaRegister of Controlled Trials (mRCT) were searched and reference lists of included papers. Search criteria were adapted to suit the search terms of each individual database.

Inclusion criteria

Study design: No exclusions were applied based on study design with all study designs being included in the review. Case studies with less than five participants in each group were excluded.

Population: Adults with noticeable visible differences, e.g. disfigurements of face, neck and hands. This included a wide range of different conditions from congenital skin conditions and abnormalities to cancer patients, or those with scars resulting from injury. All client groups were over the age of 16. Both males and females of any ethnicity or race were included. Any study containing less than 90% adults with visible differences where data were not provided separately for those individuals were excluded from the review unless the data were available from the authors.

Interventions: These included CBT, SST and more traditional forms of psychotherapy all delivered either alone or as part of a package of care. The interventions had to include some element specifically designed to target appearance concerns.

Comparators: The comparators used in this review were current standard treatments including standard therapist-led CBT for the treatment of anxiety or depression, non-directive counselling, primary care counselling, routine management (drug treatments for anxiety or depression) and no treatment.

Outcomes: The primary outcome measure was any measure of appearance related distress (e.g. body image concerns, body image quality of life etc.). Only studies with this primary outcome measure were included in the review[1]. Secondary measures included measure of anxiety and depression and general improvements in psychological symptoms, interpersonal

[1] The aim of this review was specifically to assess appearance-related distress not general psychosocial functioning and differs to other reviews, e.g. Muftin & Thompson, 2013.

and social functioning, satisfaction and preference, site of delivery and acceptability of treatment.

Exclusion Criteria

Any treatment designed to treat dysmorphophobia, body dysmorphic disorder or eating disorders such as bulimia nervosa or anorexia nervosa were removed. It was also decided to exclude any visible differences that were not considered to be commonly on display (such as breast reconstruction, abdominal injury), due to the vast amounts of literature available on these conditions. These types of conditions do fall within the remit of visible differences, but it was considered that the needs of individuals with "hidden" differences might be different to those with normally visible differences, meaning that different intervention techniques may be appropriate.

Ethical considerations

As this review is concerned with the analysis of published data, ethical considerations regarding direct contact with participants were not applicable.

Analysis

The authors used a qualitative approach to synthesise data across studies (Dixon-Woods et al., 2005) and focused on three main areas: information pertaining to theoretical or therapeutic perspective, method of delivery (setting, person delivering the intervention) and timing of the intervention (intensity and frequency of the intervention).

Meta-analysis of Trials only

Outcome Measures: Primary and secondary outcome measures of psychosocial adjustment were extracted (e.g. preoccupation with appearance, anxiety, depression, confidence, quality of life, social integration).

Effect Sizes: Standard mean differences (SMDs) and/or effect sizes together with 95% confidence intervals (CIs) were extracted for continuous outcomes and odds ratios (ORs) together with 95% CIs were extracted for dichotomous outcomes. These figures were taken directly from the papers or calculated based upon raw data provided within the papers where necessary. Effect sizes and confidence intervals were plotted using forest plots. Meta analyses were only conducted where multiple studies were randomised controlled trials (RCTs) with similar interventions to allow appropriate data pooling.

Assessment of risk of bias

Three reviewers (AN, AM & JG) independently assessed trials using the Cochrane Risk of Bias tool (Higgins & Green, 2011) to rate each of the following five components as high, low or unclear risk of bias: 1) method of sequence generation, 2) method of allocation concealment, 3) method of blinding of the outcome assessor, 4) selective reporting of outcome data (reporting all outcomes in the results that are mentioned in the method and using standard outcome measures within a particular field of research) and 5) completeness of outcome data (attrition rates and intention to treat (ITT) analyses).

In the case of observational studies two reviewers (AN & JG) used the RAMbo assessment tool (Chen & Wang, 2009) to assess the quality of randomization (R), whether missing data was accounted for (A) and whether the type of measurement was appropriate (M).

Results & Discussion

The search results identified 13837 possible studies since the previous review was conducted. After removal of duplicates, 3539 studies were identified for further investigation. Of these 3468 studies were identified as not relevant for inclusion within the review and were discarded on the basis of titles and abstracts independently by at least two reviewers (AN, AM & JG). This left 71 studies to assess for inclusion (See figure 1).

Insert figure 1 here

Of the 71 papers identified for possible inclusion, four met the inclusion criteria on closer inspection by three reviewers (AN, TM & AM). Sixty-seven studies were excluded. Reasons for exclusion included studies that did not assess an intervention targeting appearance or related psychosocial distress (27 studies), those that did not assess an intervention (five studies), case studies with less than 5 participants in each group (13 studies), descriptive articles or review papers (14 papers), those with no primary outcome measure of appearance-related distress or body image concern (6 studies) and two which met the inclusion criteria, but not enough data was present in the abstracts to include within the review (authors were contacted for full papers but were not supplied).

Risk of Bias Assessment

Two papers (Srivastava & Chaudhury, 2014; Bessell et al, 2012); were assessed using the Cochrane risk of bias assessment tool which is suitable for assessing RCTs (Higgins & Green, 2011). The Bessell et al (2012) paper was assessed for risk of bias by two researchers independent of the paper's authors (AM & JG) as two of the authors were also the authors of this review.

Risk of Bias Assessment: Of the two papers, one (Bessell et al 2012) was found to be of low risk of bias with regards to randomization sequence and allocation concealment (See table 1). Only one paper was found to have low risk of bias for blinding of outcome assessor (Bessell et al 2012). All rates of attrition were adequately documented in the papers. Srivastava and Chaudhury (2014) did not report any attrition rates throughout the study period. All outcomes reported in the studies were reported in the results.

Insert Table 1 here

RAMbo Assessment: Two papers (Jolly et al, 2010; Semple, Dunwoody, Kernohen & McCaughan, 2009) were assessed using the RAMbo technique for observational studies (see Table 2). Jolly et al (2010) did not report using a randomisation procedure, so was rated as unclear, whilst Semple et al, 2009 did not use a randomisation technique so was rated at high risk of bias. Semple et al (2009) was rated at low risk of bias for attrition and measurement, whereas Jolly et al (2010) was rated as unclear as multiple abstract publications of this study refer to different numbers of participants. The study was also rated unclear for measurement as results for the anxiety outcome measure were not reported.

Insert table 2 here

Effects of Interventions: Therapeutic approach

Cognitive-Behavioural Therapy: Jolly et al (2010) assessed the efficacy of an individual CBT program for patients with lupus. The intervention focused on body image education, self-esteem, anxiety and depression and also contained cosmetic training. The study employed 15 women with lupus (10 treatment and 5 controls) through a clinic in the United States. The mean ages of the participants in the treatment and control groups were 43.6 years and 39.3 years respectively. Outcome measures included Multi-Dimensional Body Relations

245 Satisfaction – Appearance Scale (MBRSQ-AS), Situational Inventory of Body Image Dysphoria
246 (SIBID-SF), Body Image in Lupus Screen (BILS) and Anxiety and Lupus PRO (Table 3).
247 *Insert Table 3 here*
248 The previous review by Bessell and Moss (2007) did not include meta-analyses. The authors
249 of the current review revisited the data from previous papers with a view to conducting
250 meta-analyses on any studies that consisted of randomised trials. Two of the original papers
251 met this criterion (Papadopoulos, Walker & Anthis, 2004; Newell & Clarke 2000). The Newell
252 and Clarke (2000) paper did not contain sufficient detail to allow a meta-analysis to be
253 conducted. No other CBT studies consisted of randomised trials, so it was not possible to
254 conduct a meta-analysis on this intervention type. Overall the review concluded there was
255 very limited evidence for the efficacy of CBT for adults with visible differences.
256 Combined CBT and SST: Bessell et al (2012) assessed the efficacy of two psychosocial
257 interventions against a no-treatment control. The first intervention consisted of a face-to-
258 face CBT/SST intervention, whilst the second was an online delivery of the same
259 intervention model. The study employed 83 individuals with varying visible differences
260 recruited through charity organizations, the Royal Free Hospital, London outpatient plastic
261 surgery clinic and general advertising. Participants (34 male, 49 female) were over 18 years
262 of age, with a mean age of 45 years (see Table 2 for study information). Outcome measures
263 used included the Hospital Anxiety and Depressions Scales (HADs), the Derriford
264 Appearance Scale-24 (DAS-24), and the Body Image Quality of life Inventory (BIQLI).
265 Semple et al (2009) assessed the efficacy of an individual CBT/SST program for patients with
266 head and neck cancer. The intervention focused on a series of specific areas including
267 anxiety, depression, fatigue, appearance and stress. The study employed 54 patients with
268 head and neck cancer recruited through the Regional head and Neck service in Northern

Ireland. Participants (40 males, 14 females) were 31 to 75+ years of age. Outcome measures included the HADs, the Work and Social Adjustment (WASA) scale and a health-related quality of life measure (University of Washington quality of life scale version 4) which contained a measure of appearance-related distress.

The Semple et al (2009) paper did not contain sufficient detail to allow a meta-analysis to be conducted. No other CBT studies consisted of randomised trials, so it was not possible to conduct a meta-analysis on this intervention type. Overall the review found only very limited evidence for the efficacy of a combined CBT and SST approach for adults with visible differences.

Person-centred: Srivastava and Chaudhury (2014) compared treatment as usual (one counselling session; 83 participants) against a six session psychotherapeutic program (90 participants). Participants were aged 22 – 52 years of age with a mean age of 30.05. All patients had experienced amputation. Intervention consisted of six session based on reassurance, ventilation of emotions, acceptance of self, therapeutic milieu md reintegration.

A study previously cited in the Bessell and Moss (2007) review also assessed the efficacy of a person-centred approach (Papadopoulos et al, 2004). However this study did not contain enough information to allow a meta-analysis to be conducted. Overall this review has found little evidence for the use of the person-centred approach to therapy.

Effects of Interventions: Method of Delivery

Self-help: One of the included studies assessed the efficacy of self-help interventions. The Bessell et al (2012) paper compared face-to-face delivery of a CBT intervention against an online delivery with minimal facilitation from an assistant psychologist or counsellor.

292 Face-to-face individual: All four studies assessed the efficacy of individual CBT-based
293 interventions. The Bessell et al (2012) paper also assessed the efficacy of a face-to-face
294 delivery of a CBT/SST intervention administered by a trained counsellor or an assistant
295 psychologist. The Semple et al (2009) paper assessed a face-to-face CBT/SST intervention
296 administered by a trained clinical nurse specialist. Jolly et al (2010) assessed the efficacy of
297 individual CBT-based support for women with lupus. Srivastava and Chaudhury (2014)
298 assessed the efficacy of individual psychotherapy delivered by a psychiatric nurse for
299 individuals with amputations.
300
301 Due to the differences in methodological design, it was difficult to draw any firm conclusions
302 about the optimal delivery of psychosocial interventions. Therefore, the review cannot
303 recommend whether any particular individuals should be responsible for delivering these
304 psychosocial interventions.
305 Effects of Interventions: Timing of Intervention
306 This review attempted to identify the optimal duration and intensity of intervention. The
307 studies included within this review varied in duration from two sessions (Semple et al,
308 2009), through to 10 sessions (Jolly et al, 2010). Full details of intervention duration can be
309 found in Table 3. The intensity of the interventions consisted of weekly (Srivastava &
310 Chaudhury, 2014; Bessell et al, 2012) or fortnightly sessions (Semple et al, 2009). Sessions
311 were between one and two hours in length (see Table 3 for full details of intensity).
312 Due to the differing intensity and duration across the studies, it is difficult to draw any firm
313 conclusions regarding the optimal length and intensity of therapy. However, most studies
314 opted for between 6 - 10 sessions administered weekly for 1-1.5 hours. Therefore, it would
315 seem reasonable to conclude that this is the minimum intensity and duration required to

316 lead to clinically significant changes in appearance-related distress and anxiety. This also
317 matches recommendations for the minimum intensity of therapies in the general population
318 (Roth & Fonagy, 2005).

319 Effects of Interventions: Participant Acceptability

320 As well as assessing efficacy of interventions, it is important that trials of interventions also
321 measure patient acceptability. One paper reported on overall acceptability (Bessell et al,
322 2012; Newell & Clark, 2000). The Bessell et al (2012) provided information about overall
323 acceptability, as well as ratings of usefulness and satisfaction for both the face-to-face and
324 computer-based intervention. Users of the face-to-face intervention gave it an average
325 usefulness rating of 8.23 out 10 and a satisfaction rating of 8 out 10. The computer
326 intervention was given ratings of 8.79 and 8.38 out of 10 respectively. Overall acceptability
327 for the face-to-face intervention was 51.89 out of 60 and 52.7 out 60 for the computer
328 intervention. The original Bessell and Moss (2007) review also included a study by Newell
329 and Clarke (2000) which measured patient acceptability (not included in the previous
330 review). Newell and Clark (2000) paper found that 68.75% found the leaflet useful. Only
331 9.38% rated the booklet as unhelpful. These papers suggest that the CBT or combine CBT
332 and SST approach may be viewed as acceptable by adults with visible differences.

333 *Main findings*

334 The strength of the evidence to support the efficacy of the existing interventions from this
335 narrative synthesis is generally poor. The methodological quality of the included studies was
336 limited and small intervention effect sizes were observed. The studies looked at differing
337 interventions making judgments about consistency across studies difficult because each
338 study used different intervention settings, e.g. group, self-help or face-to-face and
339 paradigms, e.g. CBT, SST or person-centred. There is some very limited evidence to support

the efficacy of a combined CBT and SST approach to support, but this is far from conclusive as it is based on a combined sample size of 137 participants.

The length of intervention required was unclear with studies ranging from six to 10 sessions. No firm conclusions can be made regarding the optimum therapy time required to reduce psychosocial difficulties, or the most appropriate setting for these interventions. Neither can conclusions be drawn about the level of therapist contact or expertise required to produce optimum results. Due to the wide-ranging use of therapeutic paradigms of each intervention, it was not possible to draw any firm conclusions regarding the acceptable content of psychosocial interventions for the visibly different population, or the adequate implementation of these interventions. The participant populations were also varied in terms of conditions and symptom severity. Further studies need to be conducted to establish which interventions are most effective for specific sub-populations.

Interpretation of findings in relation to previously published work

The findings of this review were no different to the conclusions of the original review (Bessell & Moss, 2007), which made recommendations for a greater number of future studies, including more RCTs and experimental studies. Furthermore the need for greater methodological vigour was highlighted with regards to ITT analyses, greater detail pertaining to attrition characteristics, rates and causes, greater sample sizes, clearer inclusion and exclusion criteria, and studies that measure interventions against control groups as standard. The review also emphasized the need for patient acceptability ratings.

Seven years on from the publication of the original review and it would appear that little has changed within this research field. The authors of this update decided to use a tighter inclusion criteria than used previously to ensure only studies that measured body image or

appearance-related distress were included within the analysis. This limited the number of new studies to just four. This highlights a desperate need for more research within this area, with studies measuring body image and/or appearance-related distress as standard. Furthermore, of the four new studies included in this update, only one consisted of a RCT reported in sufficient detail for low risk of bias and suitable for data pooling (Bessell et al, 2012). As this study was conducted by the two of the authors of this review demonstrates how important this timely update is for reminding future researchers of the importance of rigorous experimental design.

Current practice involves very limited testing of the efficacy of interventions, and this needs to be addressed. Within the UK, the lack of service provision within the NHS has led to an increased need amongst this population (Bessell et al, 2010). The authors suggest that the reason for the lack of scientifically tested interventions is that many self-funded charities have had to pick up the shortfall in service provision and these organizations have been more concerned with spending money on providing services than on evaluating them. Furthermore, with limited money available for research into visible difference, research centres are hard pushed to carry out cheap and quick evaluations whilst ensuring scientific rigor does not suffer. The resources involved in performing fully blind RCTs for psychosocial interventions are expensive and require large clinical and research team, which most budgets do not allow for.

Strengths and Limitations of this study

Credit must be given to the existing studies for trying to evaluate interventions for such a hard-to-reach population. Designing interventions specifically for certain conditions

388 classified as affecting appearance can be very difficult due to the rarity of some conditions.
389 Even when designing interventions for a wide range of conditions, the population can still be
390 difficult to reach leading to low sample sizes and the population can vary widely, making
391 generalizability a problem. Therefore this review was based on small populations and meta-
392 analysis was not possible due to differences in study design. Future research needs to
393 consider the use of multi-site studies in order to recruit larger numbers of participants and
394 thus increase the reliability of the findings of such evaluations.
395
396 *Implications for future research, policy and practice*
397 It must be emphasized that despite the methodological problems associated with assessing
398 these interventions, the techniques themselves are still important. Although their efficacy
399 still needs further establishment, these interventions are necessary for increasing service
400 provision for individuals with visible differences. These include interventions run by the
401 specialist psychological outpatient clinic at Frenchay Hospital in Bristol, UK, the UK charity
402 Changing Faces, the Face IT online tool, and other techniques in the US, such as the social
403 skills interventions run by Kathy Kapp-Simon for adolescents with cleft lip and palate
404 through the charity AboutFace USA in Illinois, and those run by Pat Blakeney for those with
405 burns injuries at Galveston Burns Hospital in Texas. They are also needed to address the
406 issue of an overall package of care for visibly different clients from medical treatment right
407 through to adjustment and psychosocial functioning. For these reasons, further testing of
408 these interventions is a fundamental step.
409 The current interventions have provided very limited support for the CBT and combined
410 CBT and SST models. These techniques offer individuals practical solutions to some of their
411 social difficulties without pathologising them. Although it is clear that there is a need for

individuals to have access to resources such as grief or trauma counselling, particularly after an acquired difference in order to cope with changes in body image, many individuals simply require brief solution-focused interventions. This can be provided by CBT and SST techniques. Furthermore, evidence from the acceptability measures used in some of the studies that involved these approaches has suggested that individuals with visible differences do find these types of interventions acceptable (Bessell et al, 2012; Newell & Clarke, 2000). This is further supported by a felt needs assessment recently conducted with potential service users within the field of visible difference, which identified that most service users found the idea of CBT or SST to be acceptable and positive (Bessell et al, 2010). This is an interesting point to note as it demonstrates that individuals with visible differences do not find the idea of interventions associated with their appearance stigmatizing, as has often been a concern by experts in the past.

Conclusion

Overall this review concludes that to date there is very limited evidence to support the efficacy of CBT or a combined CBT and SST approach for supporting adults with visible differences. However, there is still insufficient information to draw firm conclusions and little to no information available regarding the optimal setting for interventions of this nature, the optimal service provider, length of time or intensity of intervention. All these factors must be addressed in order to demonstrate efficacy in the future. The authors conclude that little has changed in the research community since the publication of the initial review. It is important that future research follows the recommendations made within these reviews.

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504 intervention module in Indian scenario. *Scientific World Journal,* doi:
505 10.1155/2014/469385.

506

Appendix A: Sample search strategy

1 exp Adaptation, Psychological/
2 exp Psychotherapy/
3 exp Counseling/
4 "Self-Help Groups"/
5 "Social Support"/
6 ((psychosocial$ or psycho-social$) adj5 (intervention$ or treatment$ or therap$ or program$)).tw.
7 counsel$.tw.
8 (behavi$ adj5 (therap$ or treatment$ or program$ or intervention$)).tw.
9 (cognitiv$ adj5 (therap$ or treatment$ or program$ or intervention$)).tw.
10 (psychologic$ adj5 (therap$ or treatment$ or program$ or intervention$)).tw.
11 (mindfulness adj5 (therap$ or treatment$ or program$ or intervention$)).tw.
12 "Early Intervention (Education)"/
13 Patient Education as Topic/
14 support group$.tw.
15 self-help.tw.
16 psychotherap$.tw.
17 group therap$.tw.
18 Social Adjustment/
19 person-cent$ therap$.tw.
20 solution-based therap$.tw.
21 or/1-20
22 exp Cicatrix/
23 ((face or facial) adj3 scar$).tw.
24 (visible adj3 scar$).tw.
25 keloid$.tw.
26 cicatrix.tw.
27 exp Facial Injuries/
28 ((facial$ or face) adj3 (injur$ or damage$)).tw.
29 exp Craniofacial Abnormalities/
30 exp Facial Dermatoses/
31 facial dermatos$.tw.
32 Psoriasis/
33 psoriasis.tw.
34 Eczema/
35 eczema.tw.
36 exp Skin Abnormalities/
37 Epidermolysis Bullosa.tw.
38 port wine stain$.tw.
39 exp Hemangioma/
40 h?emangioma$.tw.
41 exp Pigmentation Disorders/
42 vitiligo.tw.
43 exp "nevi and melanomas"/
44 (birth mark$ or birthmark$).tw.
45 melanoma$.tw.
46 burns/
47 burns.ti.
48 exp Alopecia/
49 alopecia.tw.
50 exp Exophthalmos/
51 exophthalm$.tw.
52 thyroid eye disease.tw.
53 exp Strabismus/
54 strabismus.tw.
55 (misalign$ adj3 eye$).tw.

56	exp Eyelid Diseases/
57	exp Mouth Neoplasms/
58	((mouth or oral) adj3 (neoplasm$ or cancer$ or tumo?r$)).tw.
59	Growth Disorders/
60	exp Dwarfism/
61	Gigantism/
62	dwarfism.tw.
63	dwarf.tw.
64	small stature.tw.
65	gigantism.tw.
66	restricted growth.tw.
67	exp Dystonia/
68	Torticollis.tw.
69	dystonia.tw.
70	Dupuytren Contracture/
71	Dupuytren$ contracture$.tw.
72	Amputation/
73	Artificial Limbs/
74	Amputees/
75	amputee$.tw.
76	artificial limb$.tw.
77	(appearance adj5 (abnormal or malformation or problem$)).tw.
78	(visibl$ adj5 disabilit$).tw.
79	(visibl$ adj5 differen$).tw.
80	disfigur$.tw.
81	(appearance adj5 (malform$ or problem$)).tw.
82	(deformit$ or deformed).tw.
83	(appearance$ adj5 (distress or anxiety or depression)).tw.
84	appearance.ti.
85	exp Mouth Abnormalities/
86	hare lip$.tw.
87	harelip$.tw.
88	Palatoschisis.tw.
89	cleft lip$.tw.
90	cleft palate$.tw.
91	orofacial$ cleft$.tw.
92	facial cleft$.tw.
93	oral cleft$.tw.
94	craniofacial cleft$.tw.
95	or/22-94
96	21 and 95
97	exp animals/ not humans/
98	96 not 97
99	limit 98 to "all adult (19 plus years)"
100	limit 98 to "all child (0 to 18 years)"
101	100 not 99
102	98 not 101

611 Table 1: Risk of bias in RCTs

Study	Study Design	Sequence Generation	Allocation Concealment	Method of blinding of outcome assessor	Completeness of outcome data	Reporting of outcome data
Bessell et al (2012)	RCT	Low	Low	Low	Low	Low
Srivastava & Chaudhury (2014)	RCT	Unclear	Unclear	Unclear	Low	Low

612 **RCT = Randomised controlled trial, Low = low risk of bias, High = high risk of bias, unclear = information in the paper not sufficient to assess risk of bias**

613

614 Table 2: Risk of bias observational studies

615

Study	Study Design	Randomisation Procedure	Attrition	Measurement
Semple et al (2009)	Observational	High	Low	Low
Jolly et al (2010)	Observational	Unclear	Unclear	Unclear

616 **Low = low risk of bias, High = high risk of bias, unclear = information in the paper not sufficient to assess risk of bias**

617 Table 3: Characteristics of included studies

618

Study	N	Location	Population	Age	Study Design	Intervention	Comparator intervention	Setting	Facilitator	Intensity	Duration	Follow-up
Srivastava & Chaudhury (2014)	90*	India	Adults with amputations	22-52 yrs	RCT	Person-centred counselling	Treatment as usual	Not stated	Psychiatric nurse	6 weekly sessions	Not stated	No follow up reported
Bessell et al 2012	83 (49 f)	United Kingdom	Adults with any visible difference	18+	RCT	CBT/SST	No treatment control	Clinic	Therapist/ self help	8 weekly sessions	1 hour	6 month post-intervention
Jolly et al (2010)	15 (15 f)	United States	Women with Lupus	18+	CT	CBT/cosmetic training	No treatment control	Clinic	Therapist	10 weekly sessions	1.75 hours	Week 18 & 24 post intervention
Semple et al 2009	54 (28 F)	United Kingdom	Head and neck cancer patients	31-75 yrs	CT	CBT/SST	Usual care	home	Clinical nurse specialist	2-6 fortnightly sessions	90 mins	3-month follow-up

619 *Not all studies reported gender. Figures are provided where reported

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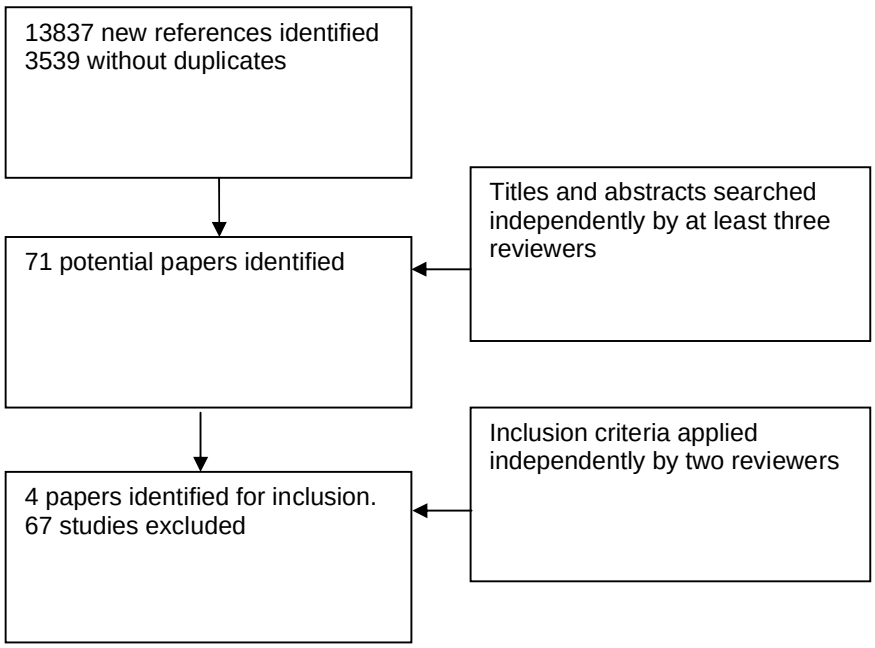

622
623 **Figure 1: Flow diagram of search results**
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