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Fit of Brassieres and Influencing Factors in Bra Selection: A Study of the University of Cape Coast Community

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Abstract:

The brassiere is the nearest foundation garment which helps to mould the female breast and provide a good shape of the outer garment. This exploratory study was aimed at looking at the fit of brassieres currently used by female students at the University of Cape Coast in Ghana and the factors influencing the choosing of brassieres by these women. Fifty women were randomly selected from the halls of residents. A closed ended questionnaire was used to collect data from the respondents and the results analysed using simple frequencies and percentages.

The results indicated that the most influential factors in brassiere selection are size (45), style (42), colour (40) and brand (16). Secondly although size was the highest influential factor and 45 of the respondents reported their current brassiere sizes, only one of those sizes matches the sizes determined by the researchers through their measurements. Thirdly although 47 respondents reported feeling comfortable in their current bra there were a number of responses which showed that there were a considerable number of brassiere fitting problems both in terms of the brassiere being too small or too big.

It was concluded that although size was the most important criteria in brassiere selection, respondents did not take time to determine their actual brassiere size. It was therefore recommended that women should take time to fit brassieres properly before buying them and also read more on factors that affect the fit and comfort of brassieres.

Keywords: Brassiere, fit, size, selection criteria

1. Introduction

Brassieres are one of the closest fitting garments worn by women. They are garments worn next to the skin with two shaped cups or pockets to hold the female breast tissue; it is supported by a chest bandeau and generally two over-the-shoulder straps. It may have elastic, wire, padding, lace trim, and a variety of other parts. Strapless versions are also used on occasions where the shoulders are exposed. Specialized brassieres are also made for holding breast prostheses of those with surgical removal of one or both breasts, in addition to the particular needs of maternity and nursing mothers. Brassieres are actually designed to support and mould the soft tissues of the upper female form, minimize jiggling and shape the appearance of a woman's breasts and by that provide a good fit of outer clothing.

Hirsch (2009) indicated that brassieres are helpful from a health standpoint. She continued that wearing the right bra keeps a girl's breasts supported while she is playing a sport and can help prevent injury to breast tissue. He continued that a well-fitting bra is also important for a woman's posture, particularly if she has large breasts. As indicated by Kaye, 1972 (cited in McGhee & Steele, 2011) inadequate bra support particularly during physical activity, can contribute to a variety of musculoskeletal symptoms such as head, neck, muscle tension, back and upper limb pain which, in severe cases can force women to seek a reduction mammoplasty. The British chiropractic association (BCA) supports Kaye assertion and added restricted breathing, abrasions and breast pain and poor posture as problems that could be caused by wearing the wrong bra size (Johnston, 2008). They indicated that the problem is even more acute in large-breasted women. In order for a bra to provide adequate support and be comfortable, it must fit properly (Page & Steel, 1999). However, up to 100 per cent of females have been found to be wearing ill-fitting bras (Greenbaum et al., 2003; McGhee & Steel, 2006; Pecher, 1998). Hirsch (2009) confirmed this by indicating that eight out of ten women wear bras that do not fit.

Several factors may be contributing to this problem of majority of women having the wrong or unsuitable bras. The influential factors relate to both psychological and factors relating to the physical nature of the bra itself. As indicated by UK experts on breast biomechanics, some women could be damaging their breasts by wearing the wrong bra, either because they do not realize it, or they are too embarrassed to wear the right bra for their size and shape (Paddock, 2008). Correct fitting bra is imperative to good health (McGhee & Steele, 2006) and sufficient breast support and bra fit will help decrease risk of negative health outcomes that women

face. As indicated by Greenbaum et al., 2003; Maha, 2000; Wilson and Sellwood, 1976 (cited in McGhee & Steel, 2011) research has found that the negative health outcomes associated with poorly supported breasts can be relieved by up to 85 per cent by women using correctly fitted supportive bra. Therefore, it is imperative to determine the factors that are contributing to ill-fitting bras and find strategies to ensure women can select a bra that provides the best support.

Though some individuals never think that bras are such an important part of the wardrobe, because they are hidden from view most of the time, they form part of a woman's outfit and contribute to the wellbeing of the individual. Looking at the percentage of women having ill-fitting bras indicated in the literature, it shows that many women are not aware that an ill-fitting or unsuitable bra can cause or contribute to the many complaints and conditions that lead them to seek medical attention, which could be avoided by just picking the right bra.

Various researches have been carried out to help draw attention to problems associated with ill-fitting bras. Current literature contains sparse information regarding the bra needs of women of any age. Publications cite sufficient breast support as a vital feature of both everyday and sports bras (Hatcock et al., 1978; Masonet al., 1999; Scurr et al., 2009) (cited in Risius, Thelwell, Wagstaff, & Scurr, 2012). Some also cite the knowledge of bra band and cup sizes as criteria to help women achieve good fit (McGhee & Steel, 2011). Strong, non-abrasive material is also believed to be a requirement of an adequate bra (Hatcock et al., 1978), in addition to cost and appearance which have been cited as important bra selection criteria in women aged 18-40 years (McGhee and Steele, 2006). However, these criteria may not apply to all populations instead other criteria may become important. Additional factors such as merchandising and brand loyalty may also be influential in woman's bra selection (Birtwistle & Tsim, 2005), indeed, research has also indicated that women shop with retailers that they feel match their own personality and self-image (Hart & Dewsnap, 2001).

Other factors may be contributing to the problem of ill-fitting bra. As indicated by Butler, Schnur, Petty, Hanson and Weaver (n.d) (cited in Wood, Cameron and Fitzgerald, 2008), breast size and mass vary throughout life, influenced by hormonal changes, body fat composition, stage of reproductive cycle and breast pathology. Meanwhile, an individual may be using one band and cup size throughout the life cycle which can create problems. The breast biomechanics team at the University of Portsmouth said poor support could lead to fragile ligaments in the breast being stretched (BBC News July 24, 2008). There is very little research on brassieres in Africa in general and Ghana in particular. Meanwhile, according to Krenzer, Starr, and Branson (2000) many bras on the market are typically advertised to a broad population and it has previously been suggested that bras should be designed based on specific shapes, populations and usages to ensure optimum fit. This shows that different populations need to be studied to determine their bra needs in order to help solve the problem of poor fit in bra.

The purpose of this study therefore was to explore the fit of brassieres and influencing factors in bra selection among women in the University of Cape Coast community. The study covered women aged 18 to 50 years in the University of Cape Coast community.

The study was guided by two objectives which were to:

1. assess the extent of fit of brassieres currently used by female students in the University of Cape Coast.
2. ascertain the influential factors in bra selection among female students in the University of Cape Coast.

The significance of the study is that information regarding women's bra selection requirements within specific populations may improve bra design and performance, which may ultimately increase bra sales. By providing fundamental information on the key areas of interest for women bra selection, the results of this study may be used to highlight areas of the bra that require redesign to obtain adequate fit. The results of the study will again aid to identify the specific factors that are responsible for the problem of ill-fitting bra in women and therefore help to find solutions to the problem. Finally, the study would provide baseline information for further research in Ghana.

2. Methodology

The descriptive survey design was adopted and data was collected at a single point in time.

2.1. Population

The research population covered women aged 18 to 50 years in the University of Cape Coast community. The study covered 50 female students between the ages indicated and included only students.

2.2. Sampling Procedure

The sampling procedure that was employed was simple random sampling. The female students were selected based on the halls of residents. The halls of residents on campus that has females are 5. With this, the researchers walked to the halls and stood at the entrance of each hall. As the female students entered the halls the researchers counted 5. All the female students that had the fifth number became part of the research. Ten participants were selected from each hall.

2.3. Instrument

Questionnaire was used for collecting data from the participants. The questionnaire sought to find out the size of bra the respondents currently use, their real bra size and problems of fit they encounter with their current brassieres. The questionnaire also went into the factors which influence the bra selection of the participants. A tape measure was employed in taking the participants measurements to determine if the answers provided were accurate.

2.3. Data Collection Procedure

Data collection for the study took two steps. First participants completed a questionnaire. Secondly, the participants' needed body measurements were taken. The needed measurements of the participants were taken by the researchers and recorded to determine the actual bra size as against the stated bra size in the questionnaire. The questionnaires were picked from participants the moment they finished answering them. It took about 10 minutes to deal with each participant.

2.4. Data Analysis

The responses were grouped according to various sections of the questionnaire. After that frequencies and percentages were used in the description of the data gathered.

3. Results and Discussion

From Table 1, it can be noted that majority of the respondents are aged between 26 to 35 years. It is noted that this trend of results is due to the fact the exploratory study was conducted on undergraduate female students in the University of Cape Coast.

Age	Number of participants	Percentage
18-25	24	48
26-35	25	50
36-50	1	2
Occupation		
Students	40	80
Students that are working	10	20
Total	50	100

Table 1: Age of participants and occupation

The British chiropractic association (BCA) noted that wearing the wrong bra size can lead to a number of problems, including back pain, restricted breathing, abrasions, breast pain and poor posture (Johnston, 2008). Research also indicates that up to 100 per cent of females have been found to be wearing ill-fitting bras (Greenbaum et al., 2003; McGhee & Steel, 2006; Pecher, 1998). Hirsch (2009) confirmed this by indicating that eight out of ten women wear bras that do not fit. This research tried to find out the situation of correct bra size and bra fit with regard to University of Cape Coast female students.

		Small	Cup size Same	Big	Total	
	Small	0	0	1	4	5 ^{a)}
Band size	Same	0	1	4	5	1 ^{c)}
	Big	13	13	13	39	
	Total	13	14	18	45 ^{b)}	

Table 2: The comparison of stated and measured bra sizes

- Participants who did not know their bra size
- The number of participants who claimed knew their bra sizes
- Participants that had bra size same as stated

Table 2 indicates that out of the 50 respondents 45 said they knew their sizes. The measurements taken of the respondents however showed that only one of these sizes corresponded with the sizes determined through the taking of their measurements.

The results indicated that 39 participants stated band sizes bigger than the measured. Out of this 39, 13 had cups same as the ones they stated, 13 had cups bigger, while 13 had cups smaller than what they stated. Participants, whose cups are smaller than what they stated, may be due to the fact that they do not know their appropriate cup sizes.

Only one participant out of the 45 had a band which was smaller than what she stated and this person had a cup which was bigger than she stated. Again this is not surprising since the smaller band puts her in a lower size so the bigger cup will fit her breasts.

Eighteen participants stated cup sizes bigger than the one determined through their measurements. Out of the 18, 4 had band sizes same as those they stated.

From the above results it can be clearly seen that most of the participants have not gone through the trouble of really ascertaining their real brassiere sizes. This confirms Johnston (2008) assertion that up to 100% of women wear bras that are wrong in size. This result can be due to the fact that participants choose brassieres by putting them on at the point of purchase. Imagine purchasing a bra in the market, it will mean they wear the brassieres over their outer garments and this can result in the poor fit.

	Number of respondents	Percentage
Bra size changed for the past two years		
Yes	17	34
No	33	66
Experience change in breast size in stages in life		
Yes	42	84
No	8	16
Use same bra size throughout the stages in life		
Yes	41	82
No	9	18

Table 3: Changes in bra size in life

From Table 3, it can be noted that only 17 reported changes in their bra sizes for the past years. This could be due to the fact that almost half (24) of the respondents are students between the ages of 18 and 24 who are still undergoing their undergraduate programmes and have not changed their sizes much. Forty-two (42) respondents said they experienced changes during different stages of their lifetime like pregnancy and menstruation. However, 41 used the same bra all these times. The use of the same bra size at times that the breast gets enlarged, which is the usual change, could lead to fit problems. This fit problem will usually be the bra getting smaller especially in the cap. A small cap results in the breast popping out from the top and at the underarm which gives a poor look of the garment. On the other hand, the period during which the breast size enlarges is short generally relative to the times that the breast has a constant size. It is therefore probable that much attention is not paid to these periods. They are treated as passing winds which do not need special attention worth investing money in.

	Number of respondents	Percentage
Bust bulging over top		
Yes	25	50
No	25	50
Bust bulging at underarm		
Yes	23	46
No	27	54
Band cutting into the back		
Yes	22	44
No	27	54
Centre front sitting away		
Yes	13	26
No	37	74
Straps cutting in at the shoulder		
Yes	18	36
No	32	64

Table 4: Criteria to determine if bra is small

Results on measurements for brassiere size of respondents indicated that only one person knew her correct bra size. Table 4 shows those who have bras smaller by problems that were indicated with brassiere fit. Between 23 and 25 respondents reported small cup sizes as indicated in the results of breast bulging over the top and at underarm. Thirteen of the respondents reported cups that are smaller than their real sizes as determined by the researchers.

Table 5 shows that 20 respondents had bigger cups shown by wrinkling. This is relatively close to the 18 (Table 2) that had cups bigger than determined; together with the 13 (Table 2) who had larger bands but same cup size as determined that gives a total of 31. Considering that the band is bigger, even though the cup size determined is same as respondents reported it can be concluded that they are wearing cups which are bigger.

	Number of respondents	Percentage
Cup wrinkled		
Yes	20	40
No	30	60
Straps slipping down		
Yes	21	42
No	29	58
Back of bra ridding up		
Yes	16	32
No	32	68
Cups sitting at the underarm		
Yes	20	40
No	30	60
Total	50	100

Table 5: Criteria to determine if bra is big

In Tables 6, 47 respondents stated their bras were comfortable. However, the results in Tables 4 and 5 showing between 13 and 25 women having each of the problems outlined under the bra being small or big does not seem to support this. It seems that ill-fitting bra does not always cause a discomfort feeling to a wearer so far as it is able to hold the breast in place. This situation, however, brings several physical problems such as pressure necrosis usually caused by the excessive tightness of the bra band. Also the respondents could attribute the comfort to how they feel in the bra, probably in terms of pain, and not to the factors that determine the fit of a brassiere.

Comfort in current bra	Number of respondents	Percentage
Yes	47	94
No	3	6
Use of same bra brand		
Yes	7	14
No	43	86

Table 6: Comfort in current bra and use of same bra brand

Table 6 shows that although 47 noted that they were comfortable in their current bras only 7 respondents maintained the same bra brand. Forty-three of the respondents do not seem to associate comfort with brand. Probably buying from the market could be a cause of comfort not being associated with brand. Boutiques tend to be more popular for brands than markets. Usually in markets, one buys what is available from their wholesale source and this is transferred to the consumer. It is however noted in Table 7 that 16 (14+1+1) out of the 50 respondents considered brand in their choice of bra. It could be inferred that although brand is considered to a point the consumers do not actually stick to a particular brand but have a number of brands which they rely on.

Selection of clothes by consumers is influenced by many factors. Some common factors that influence the choice of brassieres are size, colour, style and brand. Style could be a factor that is influenced by fashion and colour plays a very important role in undergarments in general. Generally, undergarments are worn to give a good fit and appearance to outer-garments. Size determines to a large extent the fit and comfort of a bra so a very important factor in brassiere acquisition.

Things looked out for before purchasing	Number of respondents	Percentage
Size	5	10
Style	3	6
Colour	1	2
Brand	0	0
Style, colour and size	22	44
Style, colour, size and brand	14	28
Colour and size	1	2
Style and colour	1	2
Style and size	1	2
Style, brand and size	1	2
Colour, brand and size	1	2
Total	50	100

Table 7: Factors influencing bra choice

Table 7 shows that a combination of style, colour and size is the most popular combination of factors influencing bra selection and attracted 44% respondents. With brand added to these three factors only 28% of respondents were attracted. This shows that brand is not a very important factor in brassiere acquisition by women within the study area.

Size is the most popular factor (45) considered by respondents in choosing a bra (Table 7). The number of respondents considering size in choosing their bras corresponds with the number that stated they knew their bra sizes. However, the 'real' bra size as determined by the researchers shows that only one respondent's stated size corresponds with what was determined through measurements. Probably the respondents have not taken pains to determine their real bra sizes. With size being a very important factor and one which is not very easy to ascertain, brassiere vendors especially those in boutiques should learn about sizing of brassieres and educate their customers.

Places	Number of respondents	Percentage
Boutique	7	14
Any outlet	12	24
Market	26	52
Boutique and market	2	4
Boutique and any outlet	1	2
Second hand and market	1	2
Any outlet and market	1	2
Total	50	100

Table 8: Places of bra purchase

Table 8 indicates the places where Ghanaian women purchase brassieres. It is not surprising that a good number of the respondents (30) chose the market as their place for bra purchase. Markets are the most common places of purchase all over Ghana while boutiques are mainly in the 'big' towns. It could also be due to the fact that prices are relatively lower in markets than in boutiques and also in markets one gets the opportunity to bargain. Again one can shop for a brassiere while purchasing foodstuffs and other groceries in the market.

4. Conclusions

From the results of this research it can be concluded that women in the study area claim to buy their brassieres based on size. However, only 10% of them know their correct brassiere size. This is because although 45 participants considered size in choosing their bras, the sizes they stated for their bras and real bra size as determined by the researchers show that only one out of the fifty participants used for the study stated a size that corresponded with what was determined through measurements.

Ninety-four percent (94%) of the sample stated they were comfortable in brassieres but results showed fit problems related to both cup size and band size based on the assessment of the participants and measurements taken by researchers.

Other factors apart from size that the women studied consider in order are style, colour and brand with brand being the least factor. In addition, Factors that affect the fit of bra as gathered from the study are; lack of knowledge of bra size, women using same bras throughout the various periods of life, women purchasing bras from outlets where proper fitting to determine best fit is denied and not taking the pain to establish their real bra sizes before purchasing.

5. Recommendation

Based on the findings of the study, it is recommended that with size being a very important factor and one which is not very easy to ascertain, brassiere vendors especially those in the markets and boutiques should learn about sizing of brassieres and educate their customers.

Women should be educated through seminars and workshops on the importance of wearing the right bra and taught how they can determine best fit in bras.

This same study could be repeated using a wider population to further establish the exact situation with women in Ghana.

6. References

- i. Birtwistle, G, & Tsim, C. (2005). Consumer purchasing behaviour: an investigation of the UK mature women's clothing market. *Journal of Consumer Behaviour*, 4 (6), 453- 464.
- ii. Butler, L. M., Schnur, D. P., Petty, P. M., Hanson, T. J., & Weaver, A. L. (n.d). Reduction Mammoplasty: an outcome study. *Plast Reconstr Surg*, 100, 875-883.
- iii. BBC News (July 24, 2008). Wrong bras can damage breasts. Retrieved February 9, 2013 from <http://news.bbc.co.uk/2/hi/health/7523295.stm>.
- iv. Greenbaum, A.R., Heslop, T., Morris, J., & Dunn, K. W. (2003). An investigation of the suitability of bra fit in women referred for reduction mammoplasty. *British Journal of Plastic Surgery*, 56 (3), 230-236.
- v. Hatcock, C.E., Shierman, G., & Gillette, J. (1978). The female athlete – does her anatomy pose problems?. in Palulonis, R.M. (Ed.), *The 19th Conference on the Medical Aspects of Sport*. American Medical Association Press, Monroe, LA, Pp. 1-8.

- vi. Hart, C., & Dewsnap, B. (2001). An exploratory study of the consumer decision process for intimate apparel. *Journal of Fashion Marketing and Management*, 5 (2), 108-119.
- vii. Johnston, R. (2008). Is your bra making you ill? Retrieved February 9, 2013 from <http://www.independent.co.uk/life-style/health-and-families/features/is-your-bra-making-you-ill-1044078.html>.
- viii. Hirsch, L. (2009). Finding the right bra. Retrieved February 9, 2013 from http://kidshealth.org/PageManager.jsp?dn=cookchildrens&article_set=32490&lic=403&cat_id=20015.
- ix. McGhee, D. E., & Steele, J. R. (2011). Breast volume and bra size. *International Journal of Clothing Science and Technology*, 23 (5), 351-360.
- x. McGhee, D.E., & Steele, J.R. (2006). How do respiratory state and measurement method affect bra size calculations?. *British Journal of Sports Medicine*, 40, 970-974.
- xi. Paddock, C. (2008). Wrong bra can damage breasts, say UK experts. Retrieved February 9, 2013 from <http://www.medicalnewstoday.com/articles/116140.php>.
- xii. Page, K.A., & Steele, J.R. (1999). Breast motion and sports brassiere design. Implications for future research. *Sports Medicine*, 27 (4), 205-211.
- xiii. Pechter, E.A. (1998). A new method for determining bra size and predicting postaugmentation breast size. *Plastic & Reconstructive Surgery*, 102 (4), 1259- 1265.
- xiv. Risius, D., Thelwell, R., Wagstaff, C., & Scurr, J. (2012). Influential factors of bra purchasing in older women. *Journal of Fashion Marketing and Management*, 16, (3), 366-380.
- xv. Wood, K., Cameron, M., & Fitzgerald, K. (2008). Breast size, bra fit and thorasic pain in young women: a correlational study. *Chiropractic & Osteopathy*, 16 (1). doi:10.1186/1746-1340-16-1