Short Form 36 quality of life after lay open of anal fistula

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Background
Fistulotomy is a standard procedure in the treatment of anal fistula. Most reports on fistulotomy focus on the clinical outcome of surgery with only few studies examining the impact of fistula surgery on patient's quality of life (QOL). The aim of the present study was to examine the effect of fistulotomy on patient's QOL.

Patients and methods
A total of 169 patients, who had lay open for perianal fistula at Ain Shams University Hospitals during the period from January 2011 to June 2013, were contacted at least 1 year after surgery, and were asked to fill up the Short Form 36 (SF36) QOL questionnaire. The patients' SF36 scores were compared with those of the US norms.

Results
The patients who were cured of their fistula (n = 106, 62.7%) were significantly better than the US norms in the domains of physical functioning, bodily pain, vitality and physical role limitation, whereas the US norms were significantly better in mental health (MH). The US norms were significantly better than patients who developed fistula recurrence (n = 6, 3.5%) in MH and social functioning. The US norms were significantly better than fistula patients who developed postoperative incontinence (n = 53, 31.3%) in the domains of general health perception, vitality, social functioning and MH; the difference in other domains was not significant. The US norms were significantly better than patients who developed minor postoperative symptoms other than incontinence and recurrence (n = 31, 18.3%) in general health perception and MH, whereas no significant difference was found in other domains. All groups of patients either did not show significant difference or were significantly better than the US norms in the domain of physical role limitation.

Conclusion
The majority of patients have a good QOL after fistulotomy. Recurrence, stool incontinence and the development of other postoperative symptoms can negatively affect some domains of QOL. Solid stool incontinence has the worst effect on QOL. The least affected QOL domain is the physical role limitation.

Keywords:
Anal fistula, quality of life, Short Form 36

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Introduction

Anal fistula is a common disease. Fistulotomy is a standard procedure in the treatment of anal fistula that results in cure in over 90% of the patients [1,2]. Most reports on fistulotomy focus on the clinical outcome of surgery regarding the incidence of fistula recurrence and the development of postoperative anal incontinence [3–5]. The WHO defines health as a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity. This definition coincides with the definition of health related quality of life (QOL) as patients' own appraisal of their current physical and mental health (MH), social interaction and general well-being [6]. Unfortunately, only few studies have examined the impact of fistula surgery on patient's QOL [7–9]. The aim of the present study was to examine the effect of fistulotomy on patient's QOL.

Patients and methods

The present study included 178 patients who had lay open for perianal fistula at Ain Shams University Hospitals during the period from January 2011 to June 2013. The patients with anal fistula of noncryptogenic origin (n = 13) and those who had other types of surgery (n = 23) were excluded from the study. All the patients were contacted by mail and/or telephone calls at least 1 year after the fistula surgery, and were asked to fill up the Short Form 36 (SF36) QOL questionnaire that measures the physical and mental function in eight separate health quality dimensions including physical functioning (PF), role physical (RP), bodily pain (BP),

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social functioning (SF), vitality (VT), general health (GH), role emotional (RE) and MH. The ceiling of each scale distribution is a score of 100 except the VT and MH (96–100). According to the SF36 manual the bottom of each scale distribution is 0–25, 0, 0–22, 0–25, 0–15, 0–25, 0–25, 0–36 for PF, RP, BP, GH, VT, SF, RE and MH, respectively. Each scale score is considered to be excellent when it is 100, very good when it is 84–99, good when it is 61–83, fair when it is 25–60 and poor when it is 0–24. Nine patients did not respond and this left us with 169 patients (156 males, mean age 38.4 years, age range 16–69 years), who were the participants of the present study. The patients' SF36 scores were compared with those of the US norms (Table 1).

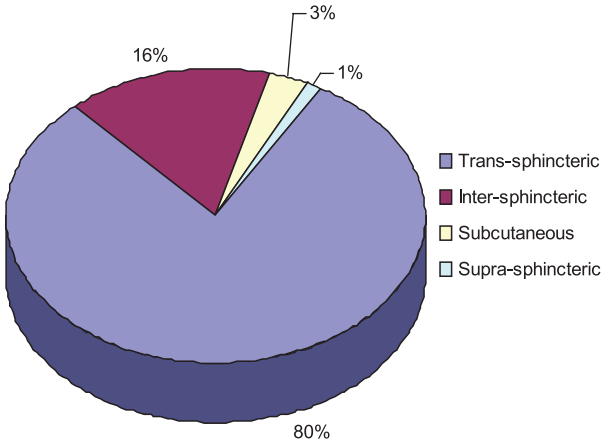
The analysis of data was performed by IBM computer using SPSS (version 20 for Windows; SPSS Inc., IBM, Armonk, New York, USA) package. The qualitative data were presented as number and percentages, whereas the quantitative data were presented as mean and SDs. The comparison between two groups with quantitative data and parametric distribution were done by using independent samples *t*-test. The confidence interval was set to 95% and the margin of error accepted was set to 5%. Therefore, the *P*-value was considered significant at the level of less than 0.05.

Results

This study included 169 patients with perianal fistula (13 female and 156 males), with a mean age of 38.4 years (range 16–69 years). The pathological types of fistula in the present study are shown in Table 2 and Fig. 1. A total of 104 patients had primary fistula and 65 patients had recurrent fistula.

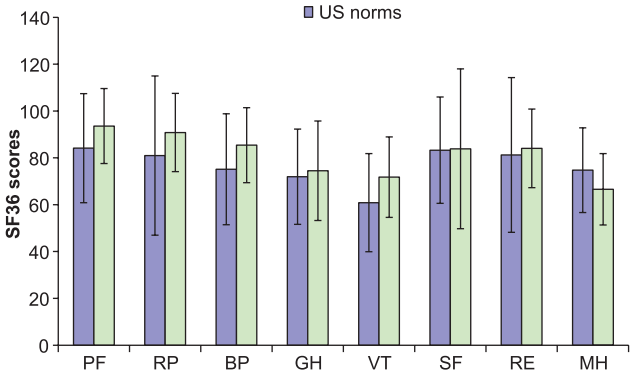
A total of 106 (62.7%) patients were cured of their fistula without developing any postoperative symptom or complications. Patients who were cured of their fistulas were significantly better than the US norms in the domains of PF, BP, VT and RP limitation, whereas the US norms were significantly better in MH (Table 3 and Fig. 2). The subgroup of patients who were cured of recurrent fistula were significantly better than the US norms in PF, RP

Figure 1



Types of perianal fistula.

Figure 2



Short Form 36 (SF36) scores of perianal fistula patients who were cured of their disease compared with US norms. BP, bodily pain; GH, general health; MH, mental health; PF, physical functioning; RE, role emotional; RP, role physical; SF, social functioning; VT, vitality.

Table 1 Norms for the general US population, total sample

	PF	RP	BP	GH	VT	SF	RE	MH
Mean	84.15	80.96	75.15	71.95	60.86	83.28	81.26	74.74
25th percentile	70.00	50.00	61.00	57.00	45.00	75.00	66.67	64.00
50th percentile	90.00	100.00	74.00	72.00	65.00	100.00	100.00	80.00
75th percentile	100.00	100.00	100.00	85.00	75.00	100.00	100.00	88.00
SD	23.28	34.00	23.69	20.34	20.96	22.69	33.04	18.08
Range	0–100	0–100	0–100	5–100	0–100	0–100	0–100	0–100
% ceiling	38.79	79.85	31.85	7.40	1.50	52.32	71.01	3.91
% floor	0.84	10.33	0.58	0.00	0.52	0.64	9.61	0.00

Statistics for each Short Form 36 in the general US population. These includes the mean, median, 25th percentile, 75th percentile, SD, observed range of scores, and the percentage score at the ceiling (highest possible score) and at the floor (the lowest possible score) for each Short Form 36 scale. These descriptive statistics are first presented for the total sample; BP, bodily pain; GH, general health; MH, mental health; PF, physical functioning; RE, role emotional; RP, role physical; SF, social functioning; VT, vitality.

limitation, RE and BP, whereas the US norms scores were significantly better in this subgroup in MH and SF (Table 4 and Fig. 3).

Overall, 63 (37.2%) patients developed postoperative symptoms or complications (recurrence, *n* = 6; incontinence, *n* = 53; other minor complaints, *n* = 31). An overlap of postoperative symptoms occurred in 27 patients. The US norms were significantly better than patients who developed fistula recurrence in MH and SF, whereas those patients were significantly better than the US norms in RP limitation. The difference in other domains was not significant (Table 5 and Fig. 4).

A total of 53 (31.3%) patients developed different degrees of fecal incontinence (incontinence to solid stools, *n* = 4; incontinence to soft stools, *n* = 21; and incontinence to flatus, *n* = 28). The US norms were significantly better than fistula patients who developed postoperative incontinence in the domains of GH perception, VT, SF and MH; the difference in other domains was not significant (Table 6 and Fig. 5). The number of domains in which the US norms showed better results increased as the degree of incontinence worsened (Table 7).

A total of 31 (18.3%) patients developed minor postoperative symptoms other than incontinence and recurrence (pruritus, *n* = 3; mucus discharge, *n* = 17; avoiding certain types of food, *n* = 3; affection of sexual life, *n* = 2; nonspecific pain, *n* = 6). In those patients, scores of the US norms were significantly better in GH perception and MH, whereas no significant difference was found in other domains (Table 8 and Fig. 6).

Discussion

The success of any surgery should be judged by how much it enhances the patient's QOL and not by the mere cure of the original disease. This statement is especially true in the treatment of perianal fistula because successful surgery is associated, not infrequently, with unpleasant postoperative symptoms that can significantly limit the patient's activities and affect his lifestyle. Unfortunately, reports on the effect of perianal fistula and its treatment on the QOL are sparse in the medical literature[7,9,10]. Some studies used simple questionnaires and found that patients' dissatisfaction after surgical treatment of perianal fistula was associated with fistula recurrence or incontinence [8,11]. In the present study, we used the SF36, a commonly used generic instrument, to assess the QOL after fistulotomy in patients with perianal fistula [12,13].

Table 2 Demographic data and types of fistula included in the study

Age	
Mean ± SD	38.4 ± 8.15
Range	16–69
Sex [*n* (%)]	
Males	156 (92.3)
Females	13 (7.69)
Type of fistula [*n* (%)]	
Trans-sphincteric	138 (81.66)
Intersphincteric	24 (14.2)
Subcutaneous	5 (2.96)
Suprasphincteric	2 (1.18)

Table 3 Short Form 36 scores of perianal fistula patients who were cured of their disease compared with US norms

Scales	US norms		Egyptians		*T*	*P*	Significance
	Mean	SD	Mean	SD			
PF	84.15	23.28	93.59	16.01	2.5	<0.05	S
RP	80.96	34.00	90.82	16.71	3.4	<0.05	S
BP	75.15	23.69	85.42	16.03	2.7	<0.05	S
GH	71.95	20.34	74.49	21.24	1.7	>0.05	NS
VT	60.86	20.96	71.77	17.18	3	<0.05	S
SF	83.28	22.69	83.86	34.11	0.6	>0.05	NS
RE	81.26	33.04	84.04	16.79	1.4	>0.05	NS
MH	74.74	18.08	66.57	15.25	2.7	<0.05	S

BP, bodily pain; GH, general health; MH, mental health; PF, physical functioning; RE, role emotional; RP, role physical; S, significant; SF, social functioning; VT, vitality.

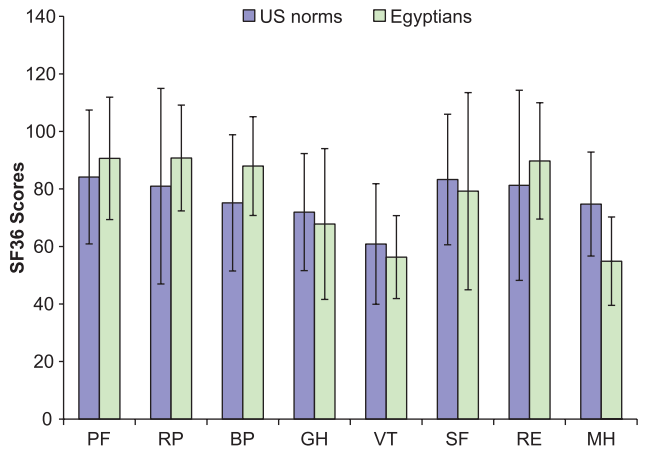
Table 4 Short Form 36 scores of recurrent perianal fistula patients who were cured of their disease compared with US norms

Scales	US norms		Egyptians		*T*	*P*	Significance
	Mean	SD	Mean	SD			
PF	84.15	23.28	90.64	21.29	2.8	<0.05	S
RP	80.96	34.00	90.76	18.38	3.3	<0.05	S
BP	75.15	23.69	87.96	17.17	4.9	<0.01	HS
GH	71.95	20.34	67.81	26.23	1.4	>0.05	NS
VT	60.86	20.96	56.30	14.43	1.1	>0.05	NS
SF	83.28	22.69	79.23	34.29	4.2	<0.05	S
RE	81.26	33.04	89.74	20.23	2.5	<0.05	S
MH	74.74	18.08	54.89	15.37	5.2	<0.01	HS

BP, bodily pain; GH, general health; HS, highly significant; MH, mental health; PF, physical functioning; RE, role emotional; RP, role physical; S, significant; SF, social functioning; VT, vitality.

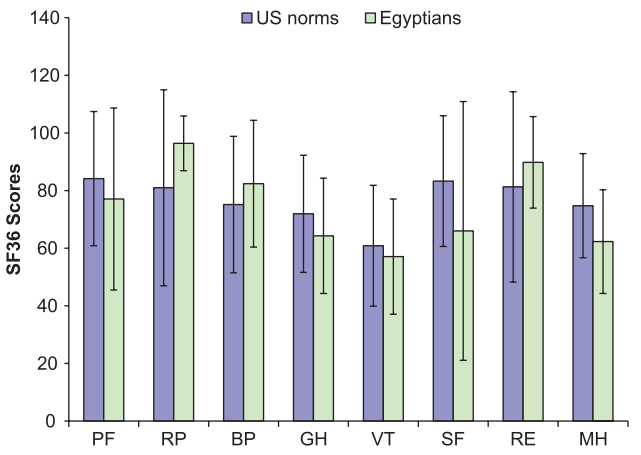
In the present study, 106 (62.7%) patients were cured of their fistula without developing postoperative symptoms or complications. Those patients were significantly better than the US norms in the domains of PF, BP, VT and RP limitation. This reflects the patients' satisfaction with the result of the surgery, the disappearance of the chronic pain of the original disease, the sense of being healthy and the ability to work and earn money. The MH score was exceptionally lower in those patients than the US norms. A good MH score in SF36 means that the patient feels peaceful, happy and calm all of the time. A low score might thus reflect

Figure 3



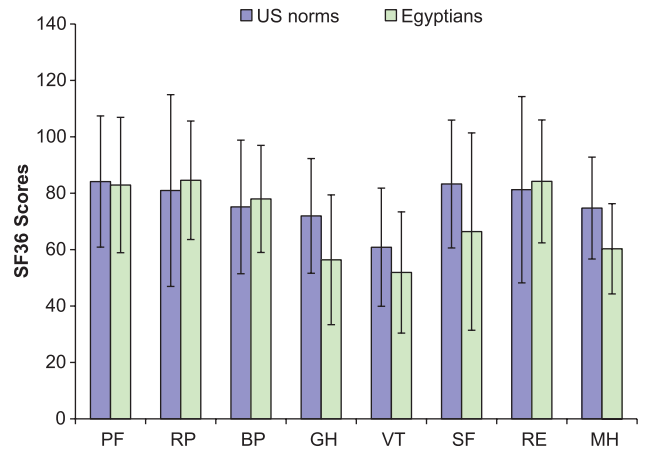
Short Form 36 (SF36) scores of recurrent perianal fistula patients who were cured of their disease compared with US norms. BP, bodily pain; GH, general health; MH, mental health; PF, physical functioning; RE, role emotional; RP, role physical; SF, social functioning; VT, vitality.

Figure 4



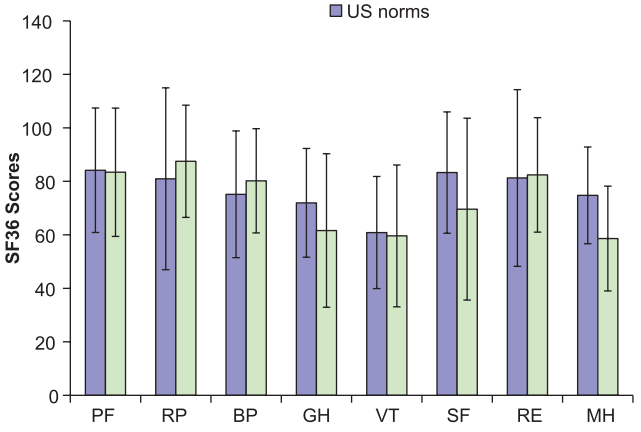
Short Form 36 (SF36) scores of perianal fistula patients who developed postoperative recurrence compared with US norms. BP, bodily pain; GH, general health; MH, mental health; PF, physical functioning; RE, role emotional; RP, role physical; SF, social functioning; VT, vitality.

Figure 5



Short Form 36 (SF36) scores of perianal fistula patients who developed postoperative incontinence compared with US norms. BP, bodily pain; GH, general health; MH, mental health; PF, physical functioning; RE, role emotional; RP, role physical; SF, social functioning; VT, vitality.

Figure 6



Fistula patients who showed other symptoms after treatment when compared with the US norms. BP, bodily pain; GH, general health; MH, mental health; PF, physical functioning; RE, role emotional; RP, role physical; SF, social functioning; VT, vitality.

the busy and crowded lifestyle in a big city like Cairo. Supporting this hypothesis is the finding that the MH score was similarly low in all other studied groups of patients. Additional explanation for the low MH score in the present study is the fear of recurrence, in those who were cured, and the worries and depression, in those who developed postoperative symptoms or complications.

Patients who developed postoperative recurrence or incontinence and those who were cured from recurrent fistulas had significantly worse SF scores than the US norms. A good SF score in SF36 means that the patient performs normal social activities without interference because of physical or emotional problems, which

Table 5 Short Form 36 scores of perianal fistula patients who developed postoperative recurrence compared with US norms

Scales	US norms		Egyptians		*T*	*P*	Significance
	Mean	SD	Mean	SD			
PF	84.15	23.28	77.1	31.6	1.1	>0.05	NS
RP	80.96	34.00	96.4	9.5	3.5	<0.05	S
BP	75.15	23.69	82.4	22	1.3	>0.05	NS
GH	71.95	20.34	64.3	20	1.2	>0.05	NS
VT	60.86	20.96	57.1	20	1.1	>0.05	NS
SF	83.28	22.69	66	44.9	3.1	<0.05	S
RE	81.26	33.04	89.8	15.9	1.3	>0.05	NS
MH	74.74	18.08	62.3	18	3.3	<0.05	S

BP, bodily pain; GH, general health; MH, mental health; PF, physical functioning; RE, role emotional; RP, role physical; S, significant; SF, social functioning; VT, vitality.

Table 6 Short Form 36 scores of perianal fistula patients who developed postoperative incontinence compared with US norms

Scales	US norms		Egyptians		*T*	*P*	Significance
	Mean	SD	Mean	SD			
PF	84.15	23.28	82.9	24	0.6	>0.05	NS
RP	80.96	34.00	84.6	21	1.16	>0.05	NS
BP	75.15	23.69	78	19	0.9	>0.05	NS
GH	71.95	20.34	56.4	23	2.9	<0.05	S
VT	60.86	20.96	51.9	21.5	2.2	<0.05	S
SF	83.28	22.69	66.4	35	3.3	<0.05	S
RE	81.26	33.04	84.2	21.8	1.1	>0.05	NS
MH	74.74	18.08	60.3	16	3.6	<0.05	S

BP, bodily pain; GH, general health; MH, mental health; PF, physical functioning; RE, role emotional; RP, role physical; S, significant; SF, social functioning; VT, vitality.

Table 7 The number of domains in which US norms showed better results increased as the degree of incontinence worsened

Scales	Flatus (*n* = 53)	Soft stool (*n* = 21)	Solid (*n* = 4)
PF	Patients better	NS	US norms better
RP	Patients better	NS	NS
BP	NS	NS	US norms better
GH	Patients better	US norms better	US norms better
VT	Patients better	NS	NS
SF	NS	US norms better	US norms better
RE	Patients better	NS	US norms better
MH	US norms better	US norms better	US norms better

BP, bodily pain; GH, general health; MH, mental health; PF, physical functioning; RE, role emotional; RP, role physical; SF, social functioning; VT, vitality.

Table 8 Fistula patients who showed other symptoms after treatment when compared with the US norms

Scales	US norms		Egyptians		*T*	*P*	Significance
	Mean	SD	Mean	SD			
PF	84.15	23.28	83.4	24	0.13	>0.05	NS
RP	80.96	34.00	87.5	21	1.7	>0.05	NS
BP	75.15	23.69	80.2	19.5	1.5	>0.05	NS
GH	71.95	20.34	61.6	28.7	2	<0.05	S
VT	60.86	20.96	59.6	26.5	0.6	>0.05	NS
SF	83.28	22.69	69.6	34	1.2	>0.05	NS
RE	81.26	33.04	82.4	21.4	0.61	>0.05	NS
MH	74.74	18.08	58.6	19.6	4.2	<0.05	S

BP, bodily pain; GH, general health; MH, mental health; PF, physical functioning; RE, role emotional; RP, role physical; S, significant; SF, social functioning; VT, vitality.

obviously is not the case in incontinent patients and in patients with fistula recurrence. A bad SF score in patients who were cured of recurrent fistula can only be explained on the assumption that those patients were more liable to develop incontinence and other annoying postoperative symptoms.

Besides the regular social activities, an important religious and social activity in the Egyptian community is going to the mosque to perform prayers five times a day, after which people meet and talk, participate in social activities and exercise. Mosque prayers require cleanliness, fitness and the absence of pain, all of which are missing in incontinent patients and those who develop fistula recurrence, thus aggravating their social isolation.

In addition to the low SF and MH scores, patients who had postoperative incontinence had impaired GH and VT. This means that those patients evaluate their personal health as poor and believe it is likely to get worse and that they feel tired and worn out all of the time. This reflects the severe depression those patients have because of their disability. Similar to incontinent patients, patients who developed postoperative symptoms other than recurrence and incontinence (*n* = 31, 18.3%) showed lower scores than the US norms in GH, whereas other domains did not differ significantly from the US norms. Obviously, a patient with chronic symptom will evaluate his GH as poor.

It is to be noted that the poor SF36 scores represented the incontinent group of patients as a whole. If we analyze those patients more critically, we can find that the majority of the incontinent patients (*n* = 28, 16.5%) were incontinent to flatus. Those patients performed exactly like patients who were cured without developing postoperative symptoms or complications, where they were significantly better than the US norms in almost all domains. The patients who were incontinent to solid stools (*n* = 4, 2.3%) had the worse QOL scores with the US norms significantly better in almost all domains. Patients incontinent to liquids (*n* = 21, 12.4%) resided in between the two previous incontinent groups.

Despite the low scores in MH and SF scores, the RP limitation did not differ significantly from the US norms in incontinent patients and in patients who developed postoperative symptoms and it was significantly better than the US norms in patients who developed postoperative recurrence. This can be explained by the fact that despite their disability, those patients had to work hard to continue earning their living and not to lose their jobs.

Conclusion

The majority of patients have good QOL after fistulotomy, including patients who develop minor postoperative flatus incontinence. Recurrence, stool incontinence and the development of other postoperative symptoms can negatively affect some domains of QOL. Solid stool incontinence has the worst effect on QOL. The least affected QOL domain is the RP limitation.

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Conflicts of interest
There are no conflicts of interest.

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